A Baillie Lecture

ON

THE SEED AND THE SOIL.

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"Behold, the sower went forth to sow; and as he sowed, some seeds fell by the way side, and the birds came and devoured them: and others fell upon the rocky places, where they had not much earth: and straightway they sprang up, because they had no deepness of earth: and when the sun was risen, they were scorched: and because they had no root, they withered away. And others fell upon the thorns; and the thorns grew up, and choked them: and others fell upon the good ground, and yielded fruit, some a hundredfold, some sixty, some thirty."—MATTHEW xiii. 3.

GENTLEMEN,—The pathology of the present day is above all things bacteriological. It inclines to attribute all diseases with which bacteria have been associated simply and singly to a bacterial origin, confidently assumes that where microbes have not yet been found they will be, and sanguinely trusts that when found they will submit to control with a tractability in the future which our experience of the past gives us no great warrant to expect. I read the other day in THE LANCET of a bacillus of fatigue and should hear without astonishment of bacilli of political or theological bias impelling their bearers to toryism or radicalism, scepticism or credulity.

One of the greatest discoveries of the past century, I may even say of all time if greatness be measured by utility, is connected with the recognition of micro-organisms, their exclusion by cleanliness and destruction by antiseptics. But it must be allowed that antiseptic surgery is more successful than is antiseptic medicine; the two are on very different footings: one has to do chiefly with suppuration, in the first instance at least a question of reachable surface; the other has to do with disease which is out of reach before it comes to our knowledge and has entrenched itself in the deep organs or found a harbour in the blood itself. One is chiefly concerned with the streptococcus and staphylococcus, comparatively simple sources of mischief, the other with bacilli of various kinds and complicated relations with disease.

Encouraged as we must be by the results of antiseptic surgery, we must approach with wary steps the very dissimilar problems which medicine presents. To these my text chiefly applies. I would venture to beg my hearers not to be so eager to secure what is new that they lose what has been acquired in the past. In grasping the new pathology of microbes and bacilli let us not quite ignore the ascertained facts of old time with regard to heredity, tissue and diathesis. It is for the purpose of recalling some of the old truths, none the less true because they are out of fashion, that I address you to-day.

Bacilli may be the roots, or rather the seeds, of much, if not of all, evil. It seems to us that we should get on better without them. But let us not be too sure of that; some sorts have uses that we know of; others may have uses that we do not know of. They take their part in the scheme of creation, though to us it may be a mischievous one.

> "From Nature's chain whatever link you strike,
> Tenth, or ten thousandth, breaks the chain alike."

As to the bacilli of disease, we from the human point of view cannot but regard them with disapproval. Our soul's sincere desire must be to get rid of them. But, unfortunately, like other enemies, they are not very amenable to frontal attack. They are more readily influenced by indirect than direct methods, by means which without bearing immediately on the bacillus render its abode unattractive or untenable.

We may learn much from the vegetable kingdom. The distribution of plants, within the range of the seed, is regulated by the local conditions which the seed meets with—soil, moisture, temperature, light, and what not. Of course, there is no growth without the seed. *Omne virum ex ovo* holds good now as in the time of Harvey. But the seed may be indiscriminately and widely spread; within certain wide boundaries it may often be said to be ubiquitous, so that the whole question of distribution turns not upon the seed but the soil, not upon the germ but its reception. Why do oaks and beeches grow in the fat levels of the New Forest, the ash and the thorn where the land is hilly and poor, and sycamores about the wind-swept homesteads of Cornwall? Not because the seed was, in the first instance, placed there more than elsewhere, but being placed there, as elsewhere, it found conditions to suit it. This is the whole story of the whereabouts of plants; the supreme law of the vegetable kingdom. The seed will fructify where it is satisfied with its entertainment and perish where it is not. For this reason, and not because the seed is conveyed there more than elsewhere, stonecrop, moss, and lichen gather on their appropriate roofs and rocks and the ivy on mouldering walls. Thus ferns multiply in their variety in one district and not in another. Ferns flourish with warmth and moisture and assure us by their presence of these qualities in the atmosphere. Maidenhair has its chosen localities in shady caves and crannies where the necessary conditions are combined, and may be so far from any other growths of the same sort that we can but wonder whence the seed was derived. Passing from natural beauty to what is repulsive we learn a similar lesson from the degraded nettle with its associations of squalor and filth. The seed may be everywhere in a country district but the weed will be found especially where human excrement has been deposited.

Examples of the paramount influence of soil or nidus in the determination of vegetable and animal life are never absent from our eyes. Take the domestic cheese. Why does one cheese breed green mould, another mites, and a third maggots? It may be that the three are kept in the same larder, exposed to the same external influences, and sown with the same seeds of animal and vegetable decay. Yet in the Stilton will gather green mould, in a fat cheese maggots, and in a lean one mites. The difference is in the cheeses themselves, not in what they have been sown with. The germs are common to all; those only will germinate which like their situation. So it is when the soil is the human body. Germs, be they vegetable or animal, are continually on the wing or in the swim; they swarm around us on every side; and if we knew how many and of what sorts are continually besprinkling us with the seeds of disease we should live in continued dread of being assassinated by these minute enemies. It is probable that no one who has lived in London has failed to give lodgement to the organism of typhoid fever, though he may have escaped its effects, and so with many other diseases. So it must be presumed to be with most of the infectious disorders which are common in ordinary life. Why is it, then, that we are not all infected with everything?

Relapsing fever may supply an illustration. This disease is occasioned by a special bacterium, the spirillum, which finds admission into the blood, presumably always by way of contagion. Yet it is intimately associated with starvation, insomuch that its accepted synonym is famine fever. The disorder is not directly caused by starvation but by the spirillum which is descended from its own kind. The want of food does not directly engender the microbe but fits the body for its entertainment. Given the suitable state of body, the appropriate germ will find it out though to our imagination completely out of reach. Our exemption rests not so much on the absence of the bacillus as on the absence of the conditions which it requires. Our forefathers did not fail to notice the connexion between depression and febrile disorders which is exemplified by remittent fever and possibly applies also in some degree to typhus fever. Says Addison, in the *Tatler*: "Physicians observe that the poorest and most dispirited blood is most subject to fevers."

Limiting the dissemination of the morbific germs by isolation is at best an imperfect measure. Our salvation largely depends on our insusceptibility, though, of course, we sometimes have to thank the feebleness or attenuation of the poison which reaches us. The human body can deal with a certain amount of the seeds of disease without becoming diseased. There is such a process as phagocytosis, in virtue of which the white corpuscles play the part of the birds and devour the seeds. There is such a condition as immunity even when the poison is active and concentrated, a state which may be either congenital or acquired, which is very real however imperfectly understood, by reason of

which the morbid germs are inhibited from further proceedings. About immunity there is much that is mysterious, but at any rate we know, as did Mithridates, that exposure to small doses or attenuated conditions of a poison, whether it be that of a snake, or of small-pox, or what not, will produce insusceptibility to larger or stronger. It is probable that most of us are habitually acquiring invulnerability to our besetting enemies by exposure to their modified attacks. This, of course, is the principle of vaccination. But this is not the only, or even the chief, means by which the spread of disease is restricted. There are qualities proper to the individual which we do not understand but cannot fail to recognise, which make some resistant of disease to which others are prone. The seed is not wanting but the soil is barren to it. These powers of resistance may be congenital or acquired and may vary in the same individual at different periods of life. Some are resistant of small-pox, others of the great pox. Watson mentions an old woman who went from village to village nursing small-pox patients. She had never had small-pox and she believed herself to be proof against it. She ultimately caught it and she died from it, but not until she had reached the age of 84 years. At the Hospital for Sick Children in my time were two nurses, a mother and a daughter, neither of whom had had scarlet fever, while both were thought to be impervious to it. They were habitually employed in the scarlet fever ward and in attendance upon such cases in private. Every epidemic, be it of what sort it may, furnishes instances of invulnerability. Of the numbers exposed to the infection only some, probably a minority, are attacked, some diseases being more comprehensive in their grasp than others. Why do the majority escape? 12,000 soldiers were shut up in Ladysmith where typhoid fever was raging; 1472 contracted the disease, or about one in eight. What saved the seven? Was it that the poison was not fairly distributed or was it because all were not equally susceptible? It is probable that the infection was distributed with much impartiality but that all were not equally prone to take it. A remarkably localised epidemic of typhoid fever occurred at Caterham in the year 1879,[1] which was traced to a workman suffering from the disease whose evacuations were allowed to enter a well belonging to the waterworks which supplied the place. Caterham at the given date had 5900 inhabitants, of whom 81 contracted the disease. The poisoned water was supplied to 419 houses from which these 81 cases were derived—an average of one case to five houses. Why did so many houses escape and so many persons in the average house? There was no blood upon the lintels to warn off the destroying angel. The water, as we may presume, was supplied impartially to all, though we have no assurance that all alike drank of it. Yet we cannot imagine that in four out of every five houses no water was drunk and we must attribute the immunity of their inhabitants, at least partially, to something other than their having abstained from it—in other words, to their insusceptibility.

But it is not necessary to multiply instances of what must be familiar to all who have considered such questions. Many of us—I may even say most of us—are frequently exposed to infection without being infected in virtue of the unproductiveness of the soil on which the seed falls. Some persons are prone to succumb as others are to resist. There are conditions of the body, whether of blood or tissue, which make it apt to entertain or to reject certain infective diseases—in other words, to accommodate or to refuse to accommodate certain bacteria. Increased susceptibility is the determining factor in many diseases, at the head of which class we may confidently place the family of tuberculoses, while in it we may provisionally include the less numerous but more obtrusive group of the cancers. As we must have regard to the known before we venture upon the unknown any speculations as to cancer may properly be postponed until we have taken stock of the assured facts and strong probabilities which relate to the subject of tubercle.

It is obvious that to originate tubercle the seed in the shape of the bacillus is essential; but it remains to be asked why of a number of individuals who receive the seed equally some should encourage its growth and others not. In one person the bacillus falls on barren ground; in another it yields fruit a hundred-fold. The determining difference in ordinary life is in the individual, not in the germ or its distribution. We can imagine an isolated item of humanity on some mountain summit or isle of the ocean congratulating himself if on nothing else on his exemption from tubercle; but in common social conditions the seed is sown broadcast and the vital question is not where it will be deposited but where it will grow. As predisposing causes of tubercle, influences which fit the soil for the seed, heredity may be placed first. Next as a distinct and recognisable antecedent, at least of pulmonary tubercle, comes local inflammation. Then comes alcoholism. Next come circumstances which, in vague phrase, lower the vitality—want of food, frequent child-bearing, over-lactation, over-work, mental distress and anxiety. Next may be mentioned conditions which are not less surely provocative of tuberculosis because their mode of action is indefinite or complicated. Chief among these are overcrowding and defective ventilation. A cause of phthisis which is accepted generally but not universally is living on damp earth. Some of these causes of disease act obviously upon the soil, so to call the human body proper; by impairing nutrition they increase the fitness of the tissues to entertain the bacillus; while overcrowding and want of ventilation are attended also with an increase of the seed owing to over-production and deficient removal.

Some of these predisposing causes of tuberculosis or of phthisis may bear a word or two of amplification. The predisposing cause may be more important than the exciting cause; in urban communities the microbe is always with us, it needs the antecedent suitability to be effective.

1. *Heredity.*—Few facts in etiology are more surely ascertained than the hereditary nature of phthisis. In some families it cleaves like a curse to successive generations as it is said to have done to the House of Tudor. It is not unknown for all the members of one generation, or almost all, to be swept off by it, each individual becoming subject to it, not when exposed more than at other times to the attacks of the bacilli but on attaining the time of life most suitable to their development. The hereditary nature of this disease is so fully recognised that it has been thought necessary to provide an explanation in the transmission of the bacillus from parent to child. The microbe enters with conception, like congenital syphilis or original sin, and remains dormant for perhaps 20 or 30 years before it declares itself. It displays none of the indecent haste to attract attention which is manifested by congenital syphilis, but holds its hand and bides its time until its entertainer has reached a certain age. If this long suspension and ultimate recovery of its mischievous properties do not commend themselves to our sense of probability we must suppose that what is inherited is not the special organism of the disease but the suitability to accommodate it; that, in short, it is a question, not of the seed, but of the soil. A certain bodily aspect is a frequent though not a constant accompaniment of pulmonary phthisis—the fair hair, the delicate skin, and the composition of white and red.

2. *Local inflammation.*—Next among the distinguishable antecedents of tuberculosis in its pulmonary manifestation may be placed inflammation of the respiratory organs. Clinical evidence appears to leave no room for doubt that inflammatory conditions, especially of the nature of lobular pneumonia, are frequent antecedents of tuberculous disease, with the presumption—as yet I speak only clinically—that *foci* of inflammation are especially inviting to the bacilli of tubercle. The indication is that tuberculous often succeed upon inflammatory conditions which are at first only catarrhal or without special character. The vulgar notion of a cold which settled on the lungs and ended in a consumption has a profound truth at the bottom of it. When my chief employment was making post-mortem examinations I repeatedly had occasion to notice the association of tubercle with pulmonary inflammation in circumstances which appeared to show that the inflammation was primary, the tubercle secondary—as, for example, when the tubercle was concentrated on one lobe which had formerly been the seat of pneumonia. Speaking clinically, however, it would seem that the kind of inflammation most often followed by tuberculosis is lobular pneumonia or capillary bronchitis—a conclusion which is warranted by the time-honoured observation that measles and whooping-cough are both frequently followed by, and are apparently productive of, tuberculous disease. Professor Sims Woodhead reminds me that as a modern experience the same may be said of influenza. The frequent association of tubercle with the diseased states of lung produced by the inhalation of irritating particles, as in the case of needle-grinders and many whose trades

[1] Report of the Local Government Board by Dr. R. Thorne Thorne, 1879.

compel them to breathe dust of various kinds, is another instance of the development of tubercle secondarily to inflammation at first non-tuberculous.

So far I had proceeded on clinical grounds and broad pathology, dealing with large results rather than minute modes of action, as becomes one who does not profess the technical skill of the bacteriologist. But I am fortunately enabled by the courtesy of Professor Sims Woodhead to supplement my own deficiency by his special knowledge; and it is no small satisfaction to me to find that we have both reached the same conclusion different as our roads have been.

> "As many arrows loosed several ways
> Come to one mark."

Professor Woodhead writes in a letter for which I have to thank him, "I think there is not the slightest doubt but that tubercular lesions are, as it were, superimposed on catarrhal pneumonias. Further, I believe that a perfectly healthy lung is seldom if ever primarily infected by the tubercle bacillus. The so-called primary tubercular catarrhal pneumonias commence as a rule in slight inflammatory affections which afterwards become infected with the tubercle bacillus." The conclusion indicated by large considerations is thus confirmed by minute research.

3. *Alcoholism.*—Next comes the question of alcoholism in relation to tuberculosis. What I hold to be a mischievous fallacy prevailed until recently, and perhaps is not even yet entirely defunct. 30 years ago,[2] in the course of some inquiries on the pathological effects of alcohol, I came upon evidence, which appeared to me conclusive and which has influenced later medical opinion, to the effect that this agent does not prohibit but encourages the growth of tubercle. With a view of ascertaining the effects of alcohol in the production of organic disease I applied myself to the admirable records of this hospital and by their means instituted a detailed comparison between the post-mortem appearances of persons whose occupations had to do with liquor—brewers' men, potmen, waiters, and the like—and others whose callings necessitated no familiarity with it. I relied upon the general rule, as applied to the class from whence the London hospitals draw their patients, that those who get drink for nothing will drink more than those who have to pay for it.

> "How oft the sight of means to do ill deeds
> Makes ill deeds done."

The comparison, it is needless to observe, was not between liquor and no liquor, one difficult to place on a sure and sufficient foundation, but between more and less, based on the fundamental character of the Anglo-Saxon. The records to which I have referred presented in 30 years the post-mortem examinations of 149 traders in drink, to which I opposed the same number of post-mortem examinations of persons not so occupied. The results with regard to tubercle were striking. Of the alcoholics 61 had tubercle of the lung and of the non-alcoholics 44. With regard to other organs and structures liable to tubercle—the brain, the liver, the kidneys, the spleen, the bowels, the mesenteric glands, and the peritoneum, every one of these in the alcoholic class displayed tubercle at least twice as often as in the non-alcoholic. Nothing could be more consistent in associating tubercle with drink. But before arriving at a final conclusion it may be as well to ask, having regard to modern knowledge, whether the preponderance of tubercle among persons concerned with liquor can be attributed to their living more within doors or being more debarred from fresh air than persons not so concerned. No doubt waiters, cellarmen, publicans, barmen, and brewers commonly pursue their employment in houses; on the other hand potmen and draymen do so in the streets. The comparison between the two classes as between indoors and out of doors comes to this. Of the 149 persons dealing with liquor 84 were presumably occupied indoors and 65 out of doors. Of the same number of persons not dealing with liquor 45 were occupied indoors and 59 out of doors, while there remained 45 the place of whose employment was uncertain or variable. It would seem that there is no such preponderance of fresh air or the want of it in either case as to account for the very decided preponderance of tubercle under drink. We may therefore conclude, and that confidently, that alcohol promotes tubercle and that not because it begets the bacilli but because it impairs the tissues and makes them ready to yield to the attacks of the parasites. "Good store of fertile sherris," though it cannot supply the seed, manures the soil.

4. *Exhaustion and depression.*—No illustrations are needed in support of the common experience that pulmonary phthisis is promoted by exhaustion and depression, by whatever impairs nutrition and lowers vitality. Insufficient or improper food, excessive work, over-lactation, grief and anxiety, have all been recognised in this relation. Diabetes mellitus cannot be excluded from the conditions of depression and ill-nutrition which give rise to phthisis. The excavation of the lung which is so common with advanced diabetes is not necessarily, or even generally, tuberculous, but may be associated with caseating pneumonia of other origin; but it appears to be sometimes connected with true tubercle; in such a case the question presents itself whether the microbic invasion is invited merely by the general prostration which the disease engenders or by the local inflammation which is another consequence of it. So far as the diabetic lung is tuberculous, whether the tubercle is connected with lowered nutrition or precedent inflammation, it is clear that the pulmonary lesion is determined not by any special or increased exposure to the germs, but by their being made welcome.

5. *Damp subsoil.*—That a water-logged subsoil is a cause of phthisis has been maintained and disputed. If dry air is one of the conditions antagonistic to phthisis, of which there appears to be no doubt, the contrary condition should have the contrary effect. We may therefore be the more inclined to accept Dr. Buchanan's conclusions as to the decrease of phthisis consequent on draining. Dehydration of the soil, other things being the same, cannot be supposed to have any direct or immediate effect upon the microbes, but probably acts indirectly through the health of the inhabitants making them less ready to give board and lodging to these undesirable visitors. It may be that humidity affects the general health injuriously, which the contrary condition restores; or it may be that the decrease of disease is connected with the fact that certain forms of bronchitis are benefited by dryness of air and the bacilli deprived of their breeding-ground.

6. *Overcrowding and insufficient ventilation.*—These are among the most effective causes of phthisis; under their influence the disease is doubly promoted; the seed is increased and the soil is fitted. The seed is increased by the multiplication of diseased lungs and the insufficient removal of their products, while the general deterioration of health produced by the vitiated air renders those exposed to it apt recipients of the special morbific agents.

Thus we see in tuberculosis, most obviously when it affects the lung, the assured influence, in the first place, of general ill-health and, in the second place, the scarcely less assured influence of local inflammation. The micro-organism, though the primary cause, is of secondary importance. The implantation of the organism, as is clinically indicated, and I may add pathologically demonstrated, in connexion with inflamed tissues or inflammatory products shows pulmonary consumption, in the beginning at least, as a local disease due to local causes. Of course, it may arise otherwise as part of a general infection, but in either case what we have most to blame is not the bacillus but the reception afforded to it. In the crowding of artificial life the bacilli are scarcely to be avoided. Sometimes, happily for us generally, these "seeds of consumption" fall upon barren soil; at other times they fall upon good ground and bear fruit a hundredfold. The conditions which fit the soil for the seed or the lung for the bacillus have been sufficiently indicated. They are descent from individuals possessing this fitness, the having attained and not over-past a certain age, precedent inflammation, and lowered vitality.

Such considerations gain practical value when we have regard to the ill-success which has hitherto attended attempts to cure phthisis by direct attack upon the bacillus; in other words, by the inhalation of germicides. Could we kill the parasite we might expect to arrest the disease, though we should still have to deal with the injuries already inflicted. But the difficulty is to kill the guest without hurting the host. The micro-organism appears to be more difficult to destroy than the tissues among which it lies. The process employed for its detection after death, or out of the body, depends on the power which it has of resisting reagents which are destructive to its environment. Whether we shall ever find a way of killing the visitor

[2] On the Morbid Effects of Alcohol. Transactions of the Royal Medical and Chirurgical Society, 1872, vol. lvi. Occasional Papers on Medical Subjects, p. 65.

without doing serious damage to the host is a question for the future—we have not done so yet. The problem is to find a remedy, presumably to be introduced by inhalation, which shall be fatal to the bacilli without being injurious to the tissues. It must be a remedy of discrimination as to what to attack and what to spare. Not corrosive or irritating lest it damage the structures, but by no means inert lest it fail to damage the microbes. It must be capable of good and incapable of harm. We cannot tell what the future may have in store for us—perhaps what we little expect; but at any rate we, or at least I, know of nothing at present which fulfils all the conditions. I have referred only to inhalation. It is so improbable that any destroyer of low life introduced by the mouth or skin should hold its lethal properties in suspense while going the round of the circulation and resume them unimpaired on reaching the bacilli that this mode of conveyance appears even less promising than the direct route by the bronchial tubes.

Taking leave, then, for the present of the cure of phthisis by germicides we must not ignore the germs altogether, for we may do something by excluding them. There is reason to believe that the bacilli, like everything that lives, live only for a time: we may hope to see some of them out. They may leave issue to keep up the race but at any rate we may prevent them from being reinforced from the outside. Purity of air is an obvious desideratum, not only because pure air introduces no bacilli but on the ground that this in certain conditions of temperature and dryness tends to bring about the resolution of many of the minor and limited, but vitally important, forms of pulmonary inflammation which are associated with the development of tubercle and apparently act as its breeding place and procreant cradle. To say that pure air is curative is to express a broad truth in inaccurate language; it should rather be said that pure air does not aggravate the existing inflammatory complications, which impure air does, and leaves the recuperative powers of nature free to work. The process of pulmonary phthisis is a mischievous combination between irritating organisms and irritated organs. To disable one confederate is something in itself and cannot but discourage the other. Our hope, I may even say our assurance, of success in a tangible proportion of cases turns not so much on our shutting out the bacilli, however desirable—an imperfect measure when they have already got in abundantly—still less on our being able to put them to death after they have got in, but on our being able to control the coöperative inflammatory processes and to fortify the tissues against the parasite. The most effective means for this double purpose are climatic, though it is to be regretted that these are not always at the command of everybody.

In these days of applied science and adventurous medicine it is necessary to preach caution lest we have too much thought for the microbe and too little for the man. Let us be guided by experience rather than by experiment. Experience has to do only with results which are matters of simple observation; experiment commonly presupposes a mode of action in which there is much room for error. It is true that there is such a thing as false experience, one form of which rests on wrong diagnosis, curing diseases which never existed; another is the too ready application of the *post hoc propter hoc* inference, attributing recovery to some treatment which had nothing to do with it, a fallacy which rests on an insufficient appreciation of the powers of nature. By these errors quacks are profited and even legitimate practitioners derive advantage. Thus experience, though the best guide we have, requires to be followed with circumspection. In all matters which savour of the experimental and of which man is the subject, or, I may even say, which concern treatment in any way, let us lay to heart the dictum of Hippocrates, self-evident though it may be, "Have two special objects in view with regard to diseases—namely, to do good or to do no harm."[3] To do good is not possible to all, nor is it possible for all to be done good to; but at any rate, we may, all of us and in every case, abstain from doing harm. If we think of dealing with inhalants let us have a reverent care for the air-passages and remember that the lung is vulnerable as well as the parasites which it harbours. Let us admit to the full that fresh air is better than foul air, but nevertheless remember that all patients are not alike, neither do all diseases which bear the same name call for the same treatment. Catarrh and bronchitis are still possible; the old laws which associate them with cold and draught have not been repealed; now as formerly they must be regarded as undesirable superadditions to lungs already unsound, added to which they appear to provide fresh breeding ground for the special organisms of the disease.

In the contest between the man and the microbe it is more to the purpose to back the man than to attack the microbe. The remedies which are most beneficial in phthisis—I may say the only remedies from which we can confidently expect benefit—are those directed to the soil rather than to the seed. They are of two kinds, or rather they act in two modes which may work together to the greater effect. First are agents which fortify the blood and tissues and add to their power of resistance; these are nourishing food, supporting medicines, pure air, and the complex, inclusive, and over-ruling influence of climate. Secondly may be placed influences bearing upon the respiratory organs in particular which discourage the inflammatory processes. Of all such influences suitable climate is the most effective. It would not be easy to analyse this supreme remedy and to give to each quality its due, but among the desiderata are purity of air, dryness of air, and sunlight—several of the essential conditions being brought together in high altitudes where these can be obtained without undue cold. It is obvious that some of these qualities, or some mixture of them, may be beneficial in more than one respect, to the lung in particular and to the system in general. But whichever they influence, whether they suppress inflammatory action or give resistance to the tissues, it is to be presumed that they act upon the human frame proper, not directly upon the parasites by which it is infested.

I have dwelt somewhat tediously upon tuberculosis because this disease illustrates my text in several particulars, but I might adduce instances from totally different disorders in which antecedent disturbance of no specific character appears to have been the starting-point of disease connected with specific organisms. The special microbes seem to be invited by morbid conditions at first unconnected with them. It used to be an article of belief—and no one can say that it is entirely unfounded—that cholera was apt to supervene upon, and seemingly to be induced by, intestinal disturbance at first of no special character. In times of cholera people were warned against food likely to disagree, against strong purgatives, and against the neglect of diarrhœa. Suspicion attached also to cold, and the "cholera belt" was thought to be a protective. In like manner the Anglo-Indian held, and probably still holds, a similar belief with regard to dysentery,[4] one of the accredited causes of which was "the exposure of the abdomen to cold," against which the prudent carefully guarded themselves. Let us not be too keen, in our modern wisdom, to sneer at these issues of ancient experience. We know that both cholera and dysentery, cholera always and dysentery sometimes, are due to special micro-organisms but it may be suggested by way of reconciling old saws and modern instances that the antecedent disturbance in this case, possibly of the nature of catarrh of the bowel, not at first specific or microbic, created a suitable nidus for the specific germs and so determined an attack which, but for the accident of cold or intestinal irritation, would not have taken place.

Some of the preceding considerations may be provisionally applied to cancer. I say "provisionally," for with regard to this disease we are still in the dark. No parasitic organism has yet been found, though the growth displays in some respects a parasitic character. All that we can see is a vicious overgrowth, essentially of epithelium, which extends at the expense of neighbouring tissues, is conveyed by vessels, particularly lymphatics, and displays a tenacious vitality which goes a long way to account for its habits. Many years ago I published[5] a case in which the contents of a malignant cystic tumour escaped into the peritoneal cavity with the result that after death, which was not long delayed, the peritoneum was found to be studded with cancerous accretions like mulberries, which were superficially attached as if they had lighted upon the surface, not developed in the substance. I could recall other observations similarly illustrating the translation of cancer by contact a mode of morbid action beyond doubt as affecting adjacent structures belonging to the same individual though not equally evident as between organs belonging to different persons. The tenacity of life which enables cancerous

[3] Epidemics, Book I., p. 200

[4] Ziemssen, vol. i., p. 562.

[5] Case of Colloid Cancer, illustrating the Independent Vitality of the Cancer Cell, Transactions of the Pathological Society of London, 1881, vol. xii., p. 92.

particles to flourish after having been cast loose from their original attachments suggests something parasitic though it does not prove it. A parasitic origin is also hinted at by the apparent habit of cancer to be repeated in certain districts and dwellings. Regarding cancer from the hypothesis of an origin in some living thing brought from without, it could be argued that, as with tubercle, the malignant microbe is not impartial in its choice of person and bodily place, that though scattered as we must suppose indiscriminately it selects individuals inheriting a certain proclivity, who have attained, and not over-passed, a certain age, and who have been depressed by grief or anxiety. As to locality it chooses situations of former injury as declared by cicatrices and other results of bygone accident. These considerations show that if cancer has a special germ a special fitness of the recipient body is needed to give it effect.

As has been said of the bacilli of tubercle so of the organisms of constitutional disease in general they are out of our direct reach, but we can in some instances get at them indirectly by making the blood and tissues unfit for their support. The antitoxins provide one of the most remarkable chapters in modern discovery and an illustration of the universal law that the seed is impotent without the consent of the soil. The bacillus, say of diphtheria, gives exit to something which is prohibitive of the diphtheritic process, and this not by destroying the germs of the disease—for the bacilli of diphtheria will grow and flourish, so I am assured, in its antitoxic serum—but by in some way indisposing the body for their entertainment. The antitoxin placed under the skin enters the blood and reaches the tissues; how far it reaches the bacilli is not clear but it is apparent that if it did reach them it would do them no harm. The immediate effect of the antidote is, to all appearance, upon the blood and tissues, not upon the bacilli; these become atrophied, not, as it seems, because they are poisoned by the antitoxin but because the blood and tissues are no longer suited to their support. Here we may pause; much remains to be learned but at any rate we have learned that in our theories of zymotic disease we must have regard not only to the germs but their reception. It is to be hoped that we shall soon know more about the antitoxins and become able to employ them to further advantage. They have accomplished something and promise more. Tubercle comes within the probability of control by their means and even cancer within the imagination of it.

I may end, as I began, with the recognition of the universal truth "*omne vivum ex ovo*." By all means let us exclude the germs of disease; if we can do so perfectly we shall be perfectly free from the diseases which they engender. But where, as too often happens, this is impossible it remains for us to accept the inevitable and to deal as best we may with the germs or their environment. Our encouragement so far has been to act upon the soil rather than directly upon the seed and, so far as our attempts at cure go, to place our chief hopes on antitoxins rather than on germicides. It seems presumptuous to speak of *cure* but yet the action of the diphtheritic antitoxin presents itself as so distinctly antidotal that the term may be excused if not justified.

I have reached the end of my sermon and I think that you will admit that I have not wandered very far from my text. If I have taken up your time with old commonplaces it is because old truths are apt to be pushed aside and forgotten in the attractions of modern science with its rapid movement and ever-changing phases. It may be as important to hold by old truths as to acquire new ones, or what we for a time accept as such. In these days of bacteriology and the magnification of germs, necessary and progressive as such researches are, it is well to be reminded that all questions of propagation, whether of animals, vegetables, or diseases, depend on the mutual adaptation of the germ and its situation. Most of the transactions which occur under the sun can be looked at from two points of view—the donor and the recipient, the attacking and the attacked, the seed and the soil. One who desires to see the whole of what is before him must have regard to both.

PLAGUE IN A ZOOLOGICAL GARDEN.—It was mentioned in THE LANCET of April 26th, p. 1219, that plague had reappeared in Sydney and had even attacked some of the animals (wallabies) in the zoological garden. A Reuter's telegram of April 30th states that 10 animals have died in the zoological garden from this cause.

EMBALMING THE DEAD.

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THE simplest means of preserving the dead is perhaps that employed by some savage races even to the present day of exposing the body after death to the influence of the sun and the air till the aqueous fluids of the tissues are dried up by evaporation. Such a method is only possible of application in those limited areas of the world where climatic conditions favour rapid desiccation and even in these places would not be available were the inhabitants collected together in towns of any considerable size. The application of what may be termed natural methods not being generally practicable, artificial processes have been resorted to from early times for the conservation of the body after death and practised with so much success that the art of embalming is very generally believed to have reached its perfection as far back as the time of the early Egyptian dynasties and to have been to a great extent, if not altogether, lost in modern times. It is not, however, the art that has been lost but the practice of it which has become in many places well-nigh discontinued. Our knowledge of the anatomy and physiology of the body as well as of the nature of chemical action and of chemical compounds gives us the means of practising the art in a much more thorough manner than was possible in earlier times. And although the methods employed by the ancient Egyptians and other races were effective, as shown by the numerous well-preserved mummies which we are familiar with in our museums, yet they cannot but be regarded as extremely crude, and the results were only obtained after an expenditure of much time and labour, 70 days being, according to Herodotus, the usual period required for each of the three processes which he has described. The Egyptian plan of procedure was briefly as follows: the body was first prepared by the removal of the abdominal and thoracic viscera and of the brain; it was then subjected to a process of pickling by immersion for a period in preservative fluid, after which various powdered herbs, resinous or bituminous material, &c., were introduced into the cavities, and finally the whole body was swathed with bandages saturated in preservative solution. By the modern methods the whole procedure is much simplified and expedited, requiring but a few hours to accomplish. The preservative fluid is distributed directly to all parts and tissues of the body through the ramifications of the vascular system, just as the nutritive elements in the blood were conveyed during life. Preliminary removal of the viscera is unnecessary—in fact, renders the operation so much more difficult that in cases where post-mortem examination of the organs is wanted it should be postponed if possible till after the embalming process has been completed.

At the present time embalming is most frequently resorted to for the purpose of enabling the body to be kept uninterred longer than would otherwise be possible without detriment to the living, as when death occurs at sea or at a distance from the intended place of sepulture, or when friends of the deceased have to come from a distance to attend the obsequies. In such instances it is only required as a temporary measure to postpone the occurrence of putrefactive changes for a longer or shorter period. But it is also required sometimes for the permanent preservation of the body, as when interment is to be made in a vault or mausoleum. In these cases embalming should always be practised and should be done most thoroughly, not only for the purpose of securing the object desired by the relatives of the deceased, but especially to render impossible as far as may be the generation of any noxious products which, emanating from the body, might give rise to an insanitary condition of the place of sepulture and thereby be a cause of danger to the living at some subsequent period.

In the practice of embalming it is not enough that the process adopted, which must be varied according to the requirements of each particular case, shall be efficient for the prevention of putrefaction and decomposition for a longer or shorter period or permanently. When the body is to be inspected by relatives some time after death has occurred, or is to "lie in state" for a period, the preservation of as

placid and lifelike a condition of the features as possible is undoubtedly a great desideratum and has carefully to be considered in selecting the process of embalming which is to be employed. Some very efficient preservatives cause rapid alteration of the face from shrinkage and their action in this direction has to be retarded or modified in cases where the natural appearance requires to be maintained. Again, in some cases the after-death appearance may be such as to make it desirable to impart a more lifelike aspect to the face than it has assumed. These several objects may readily be attained by the proper use of the various chemical products which modern science has put within our reach.

From what has been stated, and from that which is to follow, it will be seen that embalming is not a matter which should be relegated to the undertaker or someone employed by him to see to, as is too often done with unsatisfactory results. If it is to be practised successfully it calls for as much knowledge, judgment, and skill as does the performance of a surgical operation and therefore it should always receive the direct attention of the qualified medical attendant of the deceased.

In temperate climates the best period to select for the process of embalming is about 24 hours after death, when, as a rule, rigor mortis has nearly passed off and the tissues have become relaxed but no marked signs of putrefaction have begun to show themselves. The presence of putrefactive changes is not, however, any bar to the operation by which not only will the further progress of these changes be at once stopped but the parts which have become affected will be greatly improved, if not restored to their natural appearance.

Having informed himself as to the purpose for which the embalming is required the operator has to determine upon his plan of procedure and the composition of the solutions to be used—both points of considerable importance.

As regards the plan of procedure, whether the operation is undertaken for temporary or for permanent preservation of the body it should include the introduction into the tissues through the vascular system of a suitable preservative fluid and the external application of the same to the surface of the body, the latter being necessary to counteract the tendency which the epidermis has to separate from the dermis. Any gas or fluid which may have accumulated in the abdomen, thorax, and elsewhere should be removed and some preservative fluid injected in its place To enable the different parts of the process to be performed with facility the body should be placed on a long narrow table such as is used for ordinary surgical operations. If, however, this is not available and nothing better can be obtained the lid of the shell or coffin, supported on trestles or otherwise at a convenient height for the operator, may be utilised for the purpose. The operation should not be attempted with the body lying on a bed or in the coffin. The introduction of the preservative fluid into the vascular system is effected by exposing and opening one of the larger arteries situated near the surface and inserting into it a metal cannula to which is attached a tube through which the fluid is to be injected. The artery sometimes selected for this purpose is the brachial in the upper third of the arm, but in the majority of subjects the femoral in Scarpa's triangle is more suitable and is perhaps the artery most frequently chosen. In my experience, however, it is preferable in all cases where the body has to be thoroughly embalmed to select the abdominal aorta just below the umbilicus. At this spot it is easily reached by a median incision of about seven or eight centimetres long through the anterior abdominal wall, from which, in the normally collapsed state of parts after death, it is separated only by a short interval. The advantages gained by selecting this artery are its large size and the variety of other purposes served by the external incision made to expose it, whereby the operation is facilitated and rendered more effective. Thus, while the preservative fluid is entering the artery the condition of the inferior vena cava, which lies immediately to the right of it, can be seen, and if the flow of the injection in the capillaries be impeded by venous congestion this can be at once relieved. Again, any fluid or gas in the abdomen and its hollow viscera or in the thorax can be evacuated directly or by means of an aspirator needle introduced through the opening and preservative solution injected directly into them. If the opening be neatly sutured afterwards little more external trace of it will be visible than would have remained if the femoral had been selected.

The method of introducing the preservative fluid into the artery selected requires the careful consideration of the operator. The tissues being now dead matter and therefore no longer endowed with vital properties are not in the same condition as they were during life. The blood-vessels are less able to bear a strain equal to that exerted upon them by the normal blood-pressure during life; this is particularly the case when they are in an atheromatous condition, as frequently happens in old people, or when the tissues in which they are embedded are softened or broken down by disease and are consequently unable to give them the usual amount of support. The resistance to the establishment of the flow of the preservative fluid through the dead body is also a factor never present in the living and the risk of rupture of the blood-vessels during the process is proportionately increased according to the force exerted to propel it and the rate at which it is made to travel, particularly if the pressure be suddenly or unevenly applied. A rent taking place from any cause in an artery of even medium size is a serious impediment to the successful distribution of the preservative fluid and generally gives much trouble. In order to get the best results, therefore, it is of great importance to inject the preservative fluid with as low and continuous a pressure as possible. This being so it is obvious that the syringe ordinarily used to inject bodies for the dissecting-room is not suitable for the purposes of embalming, firstly, because there is no means of gauging the pressure which is being exerted by it, except the very rough one of the feeling of resistance offered by the fluid in the syringe to the onward progress of the piston; and in the second place, because it is impossible to keep up a slow and regular pressure with such an apparatus for the period necessary to get the fluid properly diffused through the tissues of the body, owing to the muscular fatigue which sooner or later affects the arms of the operator, causing him to act spasmodically. The continuous and regular pressure required is best obtained either by compression of the air above the surface of the preservative fluid placed in a closed receptacle connected at its base by a tube with the artery through which it is to be introduced into the body, or by utilising the force generated by the fluid itself in flowing from the receptacle placed at a higher level to the artery situated at a lower level. Each plan has its advantages and disadvantages, and the adoption of the one or the other must be determined upon by the operator according to the conditions under which the operation has to be performed. The requisite air-pressure is obtained by pumping atmospheric air into the receptacle containing the preservative fluid by means of bellows or a hand pump such as that used for the inflation of pneumatic tyres, worked slowly and regularly. To obtain enough hydrostatic pressure all that is necessary is to raise the vessel containing the fluid, which should be open at the top and have the tube attached to an opening at the base, till the resistance of the tissues is overcome and the fluid flows slowly through the blood-vessels. Whether the one method be adopted or the other, there should be introduced in the course of the stream of fluid as it passes from the container to the artery a gauge of some kind to indicate the force with which the preservative is entering the body. For this purpose a simple glass U-tube containing mercury and attached to an upright support on which is marked a graduated scale of units of pressure acts as satisfactorily in practice as any of the more complicated and expensive forms of fluid-pressure gauges. To enable the operator to observe the rate at which the fluid is entering the system the vessel containing the preservative fluid should be graduated. It is important for the operator to watch both the rate and the pressure at which the fluid is entering the system because a sudden increase of the former with decrease of the latter is a certain indication that rupture of one or more of the arteries has taken place and that the fluid is being extravasated into the surrounding tissues or into some cavity, instead of circulating through the vascular system as a whole.

The composition of the preservative solution to be used will to some extent depend upon the circumstances in which the operation is performed and the chemicals which are available, as well as on the predilections of the operator. In every case, however, it should be sufficient in quantity and energetic enough in its direct action on the tissues to prevent putrefaction of the body for the period required, whether that be short or long, and at the same time it must be sufficiently fluid to pass into the minute blood-vessels and to percolate through the walls of the capillaries into the surrounding tissues which it must thoroughly permeate. On the other hand, it must neither be too strong nor of such

a nature as to cause immediate hardening and contraction of the walls of the blood-vessels during its passage through them, otherwise imperfect preservation of the body will be the result. As the presence of water in the tissues, as well as a supply of free oxygen gas, is essential for putrefaction, and as the body contains sufficient moisture for the spontaneous occurrence of that process, the preservative injected should likewise possess the power of attracting to itself and absorbing the watery constituents present, and, by subsequent reduction, cause desiccation of the tissues. The rapidity with which this latter process is to take place has generally to be regulated by the time of closure of the coffin, as it causes shrinkage of the features. Judgment and knowledge of the materials used are therefore needed, not only in selecting the proper chemicals to get the desired results, but also in determining the proportions in which they are to be mixed.

The base of the injection fluid should be a substance which will combine chemically with animal matter and confer on it the power of resisting putrefaction to a high degree, it should also absorb and fix ammoniacal gas, form insoluble compounds with azotised organic principles, and be readily soluble in the vehicle used which must of necessity form the bulk of the injection. The substances which possess these properties to the fullest degree and are the most convenient to use are perhaps bichloride of mercury (corrosive sublimate), chloride of zinc, and chloral, and of these the first is upon the whole the best for purposes of embalming and the least expensive. As the introduction of more water into the tissues than already exists is highly undesirable for the reason previously stated, the use of that liquid as the vehicle of the injection is to be avoided as far as possible. In alcohol we possess a fluid peculiarly well suited for the purpose, being of itself a good preservative, having a great attraction for water which it readily abstracts from animal tissues, and therefore in every way a valuable adjuvant to the base, as well as a most effective solvent and reducer, properties which it is very desirable the injection fluid should possess. To use rectified spirit for this purpose would be unnecessarily costly, when the best methylated spirit is equally as efficient and quite good enough in all ordinary cases.

The composition, therefore, of a good preservative solution for the blood-vessels should consist essentially of bichloride of mercury or some similarly acting salt and methylated spirit, and this may also be used for external application and for injection into the cavities and hollow viscera. Two grains of corrosive sublimate in each ounce of injection fluid (1 part in 220) will be found generally to be the best strength to begin injecting the blood-vessels with, but the strength of the solution should be somewhat increased during the later stages of the process, even to four grains to the ounce of fluid. The bichloride may be readily dissolved by rubbing it in a mortar with some spirit in which it is soluble to the extent of one in seven. An injection fluid composed only of the mercury salt and spirit dries and contracts the tissues rapidly if evaporation be free. It is therefore often necessary to delay this result by adding some glycerine as a corrective. The quantity of glycerine added for this purpose should not exceed one quarter of the bulk of the spirit used and in most cases much less will suffice. The amount of preservative fluid required for a body will vary with its size but may be approximately stated to be about two gallons or nine litres for an adult male and about five litres for an adult female. The formula of the injection fluid for an adult male will therefore work out as follows: bichloride of mercury, from 640 to 900 grains—or, say, from one and a half to two ounces (from 42 to 57 grammes); glycerine, from 10 to 80 ounces (from 0·25 of a litre to 2·25 litres); and methylated spirit to two gallons (nine litres). This will give some idea of the quantity of the chief ingredients which the operator will have to provide himself with for the operation. Some more of the fluid will be required for injecting into the hollow viscera and into the body cavities and likewise for applying externally. If the prevention of putrefaction is required only temporarily less preservative need be used; thus in cases where putrefaction has set in unusually early, as sometimes occurs in hot weather in England or as a sequence of death from certain diseases, less than half the above-mentioned quantity of injection fluid will suffice. The result of injection of the blood-vessels with the preservative fluid just given will be to produce a pearly whiteness of the skin and the expression of the countenance will, except in this respect, be natural. To give a more life-like colour to the countenance a small quantity of some soluble red colouring matter may be added to the injection fluid, such as rosaniline or erythrosine, but this must be done very carefully, as effects other than those desired may be produced.

Chloride of zinc has long been used for purposes of embalming and is an excellent preservative, but a much larger quantity of it is required than of corrosive sublimate. Hitherto it has been usual to dissolve the chloride of zinc in water and sometimes to add alcohol to the solution, but in several formulæ the latter is omitted altogether. The strength of solution recommended differs widely; thus, for a body weighing 100 pounds Richardson used to inject five pints of a saturated solution with one pint of spirit added to it. Reeves recommends the injection of as much as the blood-vessels will hold of a solution containing two-thirds of a part of zinc chloride to one part of distilled water, which is somewhat weaker than the liquor zinci chloridi of the British Pharmacopœia, while a third formula gives eight litres of a solution containing one part of zinc chloride in three parts of water. By the first of these formulæ 15½ pounds of zinc chloride are required (its solubility being 10 in 4 of water) in the six pints of solution; by the second, assuming that two gallons will be taken up by the blood-vessels, 13½ pounds; and by the third, in the eight litres there would only be six pounds. The quantity of chloride of zinc used for injection into the vascular system in a case of complete embalming should certainly be from 12 to 15 pounds. This should be dissolved in methylated spirit, in which it is freely soluble and in many cases some glycerine may with advantage be added to the solution. As this injection rapidly hardens the tissues it is well to begin with a weaker solution and gradually to strengthen it during the process.

Some authorities prefer to use a preservative composed of hydrate of chloral as the base. With spirit as the vehicle and adjuvant such a solution is very effective in drying and hardening the tissues and quickly produces mummification. It should be used in the proportion of one part of chloral in eight parts of injection fluid, which may with advantage also contain some glycerine to prevent too rapid desiccation. From two to three pounds of chloral will be required for an adult male body. The solution first injected should not exceed 10 per cent. in strength, but afterwards the strength may be increased to about 15 per cent.

The instruments and appliances required for embalming are a bistoury; dissecting forceps; an aneurysm needle; a blunt hook; artery forceps; cannulæ of different sizes fixing into a stopcock-tube to the other end of which a piece of indiarubber tubing two yards in length is attached; a graduated bottle holding one gallon (about four litres) with a circular opening close to the base, into which is inserted a tightly-fitting rubber cork perforated by a stopcock-tube to which is fixed the other end of the rubber tube, and with a moderately wide neck into which a rubber cork perforated by a metal tube fits tightly; a piece of rubber tubing to fix over the upper end of this last tube about a foot in length; a U-shaped pressure-gauge attached by rubber tubing to the stem of a T-piece, the horizontal arms of which are to be inserted into the long tube at about two feet from the cannula; a double-action aspirator syringe with a somewhat curved, sharp-pointed cannula of good size and at least six inches in length; a pneumatic pump; scissors; suture silk and needles; a good-sized painter's brush; a bottle with three ounces of strong liquor ammoniæ; some narrow tape; sponges; cotton-wool; bandages; and some antiseptic ointment for the operator's hands. It is also desirable to have at hand a small post-mortem case, as some of the instruments which it contains may be required.

The cannula which I have found to be most convenient for inserting into the artery, whether that be the abdominal aorta or the femoral, is T-shaped, consisting of a right and a left half fitting closely together down the centre of the stem over which the stopcock-tube is passed to hold the two halves firmly against one another. One half of the cannula is inserted up the artery, the other in the opposite direction, and when they are united the injection will flow simultaneously both upwards and downwards. This obviates the necessity of introducing two cannulæ with double attachments to the rubber tube and a much smaller opening in the artery is required. The size of the cannula for the abdominal aorta should be from 15 to 20 millimetres in diameter, but for the femoral it should measure only about eight millimetres.

The apparatus described is designed so that it can be used

for injecting the preservative fluid either by gravitation or by air-pressure, as the operator may decide, and he may at once change from the one method to the other at any time during the course of the operation, without interfering with any of his previous arrangements, by connecting or detaching the aspirator syringe or pneumatic pump and the rubber tube affixed to the tube through the cork in the neck of the bottle. The preservative solution to be used should have been previously prepared in as concentrated a form as possible, so that it only requires to be diluted with additional spirit at the time of the operation to bring it down to the strength previously indicated and so make it ready for use.

The plan of procedure having been determined and the preservative fluid to be used being ready the operator, after seeing that he has been supplied with hot and cold water and the proper utensils, such as basins and slop or toilet-pails, also towels, &c., should proceed to lay out his instruments and to set up his apparatus and charge it with preservative fluid; lastly, the body is to be placed on the operating table. As a preliminary to the operation, especially if rigor mortis has not quite passed off, the limbs should be gently flexed and then extended to relax the muscles. The artery is next to be exposed and opened by a vertical incision and the double cannula introduced fixed and secured by ligatures. Before fixing the tube from the reservoir to the stopcock-tube on the cannula the procedure recommended by Richardson of inserting into it the nozzle of the syringe or pneumatic pump previously charged with ammonia vapour and forcing some of the latter into the arteries certainly seems to facilitate the flow of the preservative solution when the injection is begun and may with advantage be followed. The tube having been filled with fluid by turning on the tap at the base of the reservoir, it is attached to the free end of the stopcock on the cannula and the solution is permitted to enter the vascular system. If the gravitation method of injecting be adopted the reservoir has now to be elevated till the fluid has sufficient "head" to pass into the system, and the pressure-gauge and index is to be watched till the solution is nearly exhausted, when the reservoir should be replenished with stronger solution than that first used. Should the operator adopt the pneumatic pressure method the nozzle of the pump or syringe is inserted into the tube attached to the cork in the neck of the bottle or reservoir, and he proceeds to pump air into the latter till he sees by the index that fluid is entering the arteries; this being effected he has to maintain the pressure indicated by the gauge as the quantity of solution in the reservoir diminishes. If this latter method be selected the reservoir requires only to be placed upon a table about level with the body. In default of a sufficiently high resting-place being obtainable to get the necessary pressure for the first method a combination of the two methods should be practised. After a few litres of solution have passed into the system, if everything has gone on satisfactorily, the skin will begin to present a mottled appearance, first observable in the face, which will gradually begin to look fuller and more life-like and perhaps even puffy about the eyelids, the superficial veins of the body will become more pronounced as they become charged with blood, and as the white mottling spreads and adjacent patches coalesce. At this stage it is desirable to examine the inferior vena cava through the abdominal opening and to tap it if distended to relieve the venous engorgement and resistance. As more injection fluid passes into the system the body will become quite rigid and the skin white and parchment-like, unless the solution contains sufficient colouring matter to give it a pinkish hue. The injection will gradually pass in more slowly, although the gauge indicates that the former pressure is being maintained, and finally stop flowing, showing that the vascular system has been fully charged. The stopcocks may then be turned off for a time and the solution already introduced permitted to diffuse itself equally in the tissues. At the end of five or six hours an attempt may be made to introduce some more solution, if considered desirable, but this is not often necessary unless rigidity has not been established, which seldom happens. Meanwhile the operator proceeds to deal with the thoracic and abdominal viscera. The diaphragm should be punctured with the aspirator needle, care being taken not to injure the heart or lungs in so doing, any gas present should be allowed to escape, and some strong preservative solution should be injected. The same procedure should be adopted with the stomach, the bladder, and the intestines; the last-named will require to be punctured at two or three places. Finally, some solution should be injected into the peritoneal cavity, the nasal cavity, and the mouth. If the superficial veins are still engorged it is desirable to empty them as far as possible by rubbing them in the direction of their main trunks and to inject some solution of the first used strength into them from their distal extremities.

The external application of preservative has next to be done. For this purpose a strong solution of bichloride of mercury and spirit should be prepared and rubbed well into the skin of the head about the roots of the hair with a painter's brush, and the whole of the body should be painted over several times with a mixture of one part of the concentrated sublimate solution to about six or eight parts of glycerine.

If no further injection of the vascular system be required ligatures may be placed round the artery immediately beyond each end of the double cannula and tied. The cannula is then to be removed and the edges of the external opening are to be brought together neatly and sutured closely with fine silk. The operation being completed the body is to be replaced in the shell along the bottom of which should previously have been arranged a thick layer of sublimate wood-wool.

In the foregoing description it has been assumed that the condition of the body has been favourable for the operation and that no hitch has occurred during its performance. Things do not always run smoothly, however, and the operator must be prepared for less satisfactory conditions being present and for accidents happening, and he must be ready to meet emergencies just as he would do should they occur in the course of a surgical operation he was performing. It is only possible here to mention some of the complications which may confront him and render the operation more difficult.

Perhaps the most frequent complication which occurs in the course of an ordinary injection operation is rupture of an artery. It generally takes place in the thorax or the abdomen and is usually the result of disease of the vessel or organ in which it occurs. In such cases one or other or both of these cavities must be opened in the manner to be described presently when a post-mortem examination of the organs has to be combined with an embalming operation and the ruptured vessel secured by ligature or otherwise; in some cases the organ in which it is situated must be removed. Rupture of a vessel inside the skull is of little consequence, that being a closed box and strictly limited in capacity. In other parts of the body, also, the vessel can more or less readily be got at and tied and the rupture does not materially interfere with the operation. Such accidents are fortunately rare when the pressure with which the solution is introduced into the system is kept low.

The most troublesome cases to deal with are decidedly those in which general anasarca is present. Before attempting to inject preservative fluid into the vascular system in these cases the dropsical condition must as far as possible be got rid of, otherwise the solution will not flow through the vessels into the tissues, owing to the coagulation of the albumin in the serum which immediately results from contact with the preservative, whether that be corrosive sublimate or chloride of zinc. The best course to pursue in these cases is to begin by making the incision in the abdominal wall to expose the abdominal aorta, then, if ascites be present, the fluid contained in the abdomen should be syphoned out with indiarubber tubing. While this is being done the limbs should be elevated as much as possible and tightly bandaged from their distal extremities upwards towards the trunk with a broad indiarubber bandage, such as is sometimes used in the treatment of callous ulcers. The bandaging may with advantage be carried onwards beyond the limbs and made to include the greater part of the trunk. The artery should be opened for the insertion of the cannula and in most cases the inferior vena cava should also be incised and punctures made where necessary to let the serous fluid escape; the thoracic cavity should likewise be tapped from the abdominal opening by puncturing the diaphragm, and any fluid which it contains should be removed. After the condition of the body has been improved as much as possible the injection of the preservative solution may be proceeded with. It will be found generally that the injection has to be made under considerably higher pressure than is ordinarily required and the risk of rupture of a blood-vessel is correspondingly increased in consequence. Should much difficulty be met with in getting the injection to enter the system it may be necessary,

after as much preservative has been introduced as can be got into the arteries, to supplement this by making subcutaneous injections into the muscular and cellular tissue at numerous points over the body as well as into the cavities. In bad cases it is perhaps better to use hydrate of chloral dissolved in alcohol and a little water, or a solution of formic aldehyde, instead of corrosive sublimate or chloride of zinc solution, as being less liable to produce immediate coagulation of the albumin of the serum infiltrating the tissues and clogging of the blood-vessels.

When death has resulted from the bursting of an aneurysm in the thoracic or abdominal cavity the injection should be performed from the ruptured vessel which has to be exposed for the purpose.

A post-mortem examination of the viscera as well as the preservation of the body by embalming may be required. In this case the injection of the vascular system and the external application of preservative should, if possible, be done first, the application of preservative solution to the visceral cavities being postponed till after the post-mortem examination has been made. The latter should not take place before the lapse of 24 hours after the injection of the vascular system. But circumstances sometimes demand that the post-mortem examination shall be done first before any chemicals have been introduced into the body. In this event the best plan is to begin by making one long median incision from the top of the sternum to the pubes, then to divide the sternum longitudinally, and forcibly to separate the thoracic walls as far apart as possible, fixing them in this position by means of two pieces of wood placed at each end of the sternum. The space thus obtained is limited, but by dexterous manipulation it will be sufficient to enable the operator to reach the heart and lungs and to remove them. The aorta and vena cava should be divided close to the heart, a thread having previously been passed through each and the ends brought to the surface of the thorax so as to facilitate the subsequent recovery of these vessels. The trachea should be divided just above its bifurcation; in doing so care must be taken not to injure any of the blood-vessels of the neck. The nerves and other structures having been divided, the heart and the lungs are then to be removed carefully without disturbing their surroundings more than is absolutely necessary. After their examination has been completed they should be washed and immersed in preservative solution. The œsophagus and rectum are then to have double ligatures placed round them, the former just above the stomach, and to be divided between the ligatures; the digestive tract with the pancreas and the spleen and then removed, the arteries having been ligatured one by one as they are divided. A ligature should be placed on the inferior vena cava above and below the liver and on the other vessels; these are then to be divided between the ligatures and the liver and the latter removed. The kidneys are to be removed after their vessels have in like manner been ligatured. The examination of the viscera having been completed they are to be placed in preservative solution for some hours and when the injection of the vascular system has been accomplished they are to be returned to their respective places. If the brain is also to be examined the scalp is divided from ear to ear over the vertex and drawn forward and backward with the periosteum and muscles, and the calvaria is sectioned horizontally without injuring the vessels of the dura mater. In removing the brain the arteries should be divided sufficiently far above the base of the skull to permit of their being easily ligatured. On the examination of the brain being completed it should be placed in preservative solution. The interior of each of the cavities opened having been carefully washed and dried a systematic search has to be made for all divided vessels, and such of them as have not already been ligatured must now be secured; the foramina of the base of the skull also must be tightly plugged from above with cotton-wool moistened with a thick solution of gum acacia. A large cannula is then to be introduced into the aorta and firmly secured; the injecting apparatus having been attached to it the injection of the vascular system may be proceeded with. Although apparently all the principal vessels have been tied, yet when the injection solution is turned on it will be found to escape at numerous points where divided vessels have been overlooked, just as takes places in an amputation of a limb when the tourniquet is slackened; these must be secured by ligatures or compression forceps as rapidly as possible. In consequence of the loss of preservative solution which inevitably takes place, notwithstanding that the pressure with which it is injected has been reduced to the lowest possible point, considerably more will be required than in ordinary cases where the embalming is done in the first instance; the operation is also greatly prolonged and much patience has to be exercised in performing it. There is, however, no reason why it should not be successful if thoroughly and carefully carried out.

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THE QUIESCENT OR LATENT PERIOD IN THE COURSE OF GRAVE ABDOMINAL INFLAMMATION.[1]

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IN cases of acute abdominal lesions where the diagnosis is in doubt the simplest thing to do is to perform an abdominal section, but as surgery is a science as well as an art all are agreed that no exploratory operation should be performed without justification. There is, however, a debateable ground—a period of repose or quiescence—where instinct or intuition tells that the patient is suffering from a grave abdominal lesion. Year by year, as these affections are more closely studied and as clinical and pathological data accumulate, the debateable ground becomes gradually narrowed, but every surgeon from time to time in the course of his experience meets with cases in which he has conscientious doubts as to whether he should operate or should withhold his hand. Unfortunately, too, the effect of not sufficiently grasping the true state of affairs is more disastrous in this region than elsewhere and cases can be recalled in which, after an acute onset, the pain subsides, the vomiting ceases, the temperature falls to normal, and the patient expresses himself as being tolerably comfortable. But subsequent experience shows that this change in the symptoms is by no means significant of real improvement. Sometimes this period is a deceitful and treacherous calm and as likely as not marks the onset of grave complications which terminate fatally. It is this interval of apparent remission in the course of the disease which I venture to term the quiescent or latent period—quiescent in so far as the disappearance of some of the symptoms is concerned and latent in that it precedes an aggravation of trouble, acute peritonitis, and a fatal issue.

I was much struck by a case which I was called to see some years ago. It was that of a married lady, aged 30 years, who, with a history of somewhat ill-defined dyspepsia for some years, was suddenly seized with acute pain about the umbilicus on a certain Monday afternoon. The pulse quickened, the temperature rose to 100·4° F., and the abdomen rapidly became tympanitic. On the next day the symptoms remained much the same until towards evening when a marked improvement took place. I was asked, however, to see her in consultation on the Wednesday. I found her free from pain, the pulse and temperature normal, the facial expression placid, and apparently there was no need for any surgical interference. She was, however, kept in bed and carefully fed by rectal enemata, as it was suspected that leakage might have taken place from a gastric ulcer. On the Friday the symptoms returned suddenly and with great violence. I was called to see her in the evening and prepared to operate. She had been placed under the anæsthetic when suddenly she vomited and brought up a large quantity of blood and life was soon extinct. Unfortunately no post-mortem examination could be obtained. The period of calm in this case, which occurred from the Tuesday night to the Friday morning, is an example of what I mean by the quiescent or latent period in acute abdominal affections. I do not myself doubt that there was some one symptom present, more or less marked, that escaped my attention which, had I known it, would have revealed the full significance of the first onset, and if I had been called to the case at this time I should have examined the blood for leucocytosis. It is probable that when the attack first came on an ulcer had eaten its way down to the peritoneum and a little leakage had occurred,

[1] A paper read before the Medical Society of London on April 28th, 1902.

the aperture being plugged by inflammatory lymph, but the ulcerative process went on rapidly until a large vessel was eaten into. And looking backwards on the case there is no doubt that the patient ought to have been operated upon during the quiescent period.

It must be confessed, however, that it is extremely difficult to be always wise at the time and in contrast with this case I will allude to another gastric case. About three years ago I was asked by Dr. B. N. Dalton of South Norwood to see a case with a view to operation which he had diagnosed as perforated gastric ulcer, the onset having occurred about 18 hours previously. We operated, found the perforation, and applied an omental graft and the case did quite well. About eight months subsequently, in Dr. Dalton's absence on his holiday, I was sent for again to see this patient. She had had rather a fatiguing day in London and being hungry had eaten some ham sandwiches rather late at night. In the early morning she was seized with sudden pain and some vomiting and I saw her the same afternoon. When I arrived I found some tenderness over the upper part of the right rectus and rigidity of the muscle there but no tympanites and the liver dulness was normal. On the occasion of the previous attack the liver dulness had been lost. I therefore decided to postpone the question of operation and to watch matters carefully and, as events proved, that was the right course to be taken, for she has, so far as I know, never been troubled since with her stomach in any way.

But while the quiescent period was fairly well marked in the first of the stomach cases which I have quoted, yet there are many cases other than gastric in which it is better marked and I should be disposed to say that the quiescent or latent period is from time to time a prominent feature in the following group of cases:—1. Injury to the intestines with or without rupture. 2. Perforation of the intestines by ulceration. 3. Injury to, and bruising of, the peritoneal connexions of the viscera, with interference with their blood-supply. 4. Acute diseases of the genital organs, especially of the Fallopian tubes. 5. Acute appendicitis, either ulcerative, perforating, or gangrenous, and this disease undoubtedly affords by far the greater number of examples of apparent improvement. In order to give point to my remarks I should like to quote some cases from surgical literature.

1. *Traumatic rupture of the intestine.*—Dr. J. J. Buchanan[2] reports a case of a young man, aged 18 years, who was struck in the abdomen at 5 o'clock one morning by an iron implement. When seen five hours afterwards he was unable to say where he had been struck. No ecchymosis, or sign of contusion, or area, of tenderness was present. His general condition was good and his pulse was of good volume, regular, and 88 to the minute. The temperature was 98° F. There was no abdominal distension or excessive rigidity of the muscles but the abdominal wall had not its normally soft condition. He had vomited after the accident and once after admission to the hospital. Dr. Buchanan, on examining him, noted that peristalsis was almost absent, and on this symptom, taken with the slight rigidity and the fact that he had vomited twice, abdominal section was decided upon and was performed at 11 A.M. (six hours after the accident). On opening the peritoneum thickened and congested bowel presented itself and sero-purulent fluid escaped. On further examining the intestine a rupture of the small intestine about a third of an inch in length was discovered with fæcal matter exuding. This was sewn up, the peritoneal cavity was douched with saline solution, a drainage-tube was put in, and the patient ultimately recovered. At the same time it must be admitted that there are many cases in which there is marked evidence of contusion of the abdominal wall with considerable collapse which recover entirely without operation.

2. *Perforating ulcer of the intestine.*—This condition affords excellent examples of this latent period. I quote a case described by Dr. A. B. Johnson,[3] in which a man, aged 27 years, was admitted to the Roosevelt Hospital with a history that four days before admission he was seized with colicky pains about the umbilicus but there was no vomiting. His pains were not severe and his bowels were moved daily and he remained at his work. At 1.30 A.M. on the day of his admission he was seized with severe abdominal pains followed by a chill. On admission the abdomen was not distended. It was markedly tender and was rigid throughout. Eight hours after admission the abdomen was opened and a good deal of cloudy, bile-stained fluid, with flakes of coagulated lymph, escaped. The vermiform appendix was examined but was found to be healthy, and ultimately upon the anterior surface of the descending portion of the duodenum a small perforation was found forming the floor of an ulcer. The perforation was closed and the patient recovered and six weeks afterwards he was in the best of health. In this case the quiescent period, or at any rate the period in which grave symptoms appeared to be absent, lasted for four days.

3. *Injury to, or bruising of, the peritoneal connexions of the viscera.*—Still more deceptive than the cases which I have quoted are those where there has been injury to the blood-supply of the intestine or bruising of the peritoneal connexions. As an example of this I may quote a case which occurred while I was a dresser. It was that of a middle-aged man who was knocked down in the street by an omnibus, the front wheel passing over him obliquely from the pubes to the left lumbar region. He was much collapsed when brought to the hospital but there were no distinct symptoms. After three or four days he recovered and it was thought that he might be discharged, but that experienced surgeon, the late Mr. Davies-Colley, preferred to watch the case, and on the eleventh day after the injury the patient was suddenly seized with acute symptoms of peritonitis and he died in a few hours. On examination it was found that a considerable portion of the great omentum had sloughed.

A very remarkable case of traumatic rupture of the mesenteric arteries is reported in the *Annals of Surgery* for March of this year. A very heavy man, aged 53 years, slipped and fell and sustained a fracture of the bones of the leg, and some symptoms of shock were noticed. There was no pain in any other part of the body. On the following day the patient seemed weak but was easy and cheerful. His temperature was 99·5° F. and the pulse was 99. The urine was scanty but it contained no abnormal constituents. On the following day his condition had altered for the worse and it continued to do so during the next four or five days but no definite diagnosis could be made. There was some slight distension of the abdomen but careful percussion revealed no localised dulness or undue resonance. He was extremely pallid and breathed irregularly; his temperature was sub-normal and his pulse was 160, and it was thought that he was dying from internal hæmorrhage. On the seventh day after the accident he died and on opening the abdomen a large quantity of blood was found which was due to the ruptured walls of several of the mesenteric arteries. The mesentery contained an enormous amount of fat and there can be no doubt that in the pull exerted upon this structure by the violent fall it and its vessels were lacerated. In this case the latent period may have been due to the slow hæmorrhage and absorption of the liquid portions of blood in the early stages of the case by the peritoneum.

4. *Acute diseases of the genital organs.*—The records of gynæcology furnish numerous examples of acute diseases of the genital organs, especially of ruptured Fallopian tubes from pyosalpinx and tubal pregnancy, where the serious nature of the disease has not been at once evident.

5. *Acute appendicitis.*—The latent period, or, as Mr. Charters Symonds[4] in his very able and instructive Hunterian Oration designated it, "the period of repose," is extremely well marked in cases of appendicitis. He mentions one case of a female, aged 20 years, who was seen 48 hours after an acute onset and was considered so well on arriving at the hospital that operation was postponed until the next morning when a foul abscess was evacuated, and he says that "in nearly all the acute cases a stage is reached soon after the onset marked by a cessation of all acute symptoms. The patient passes, unaided by sedatives, into a condition of repose. This period, if wrongly interpreted, may lead to disaster. It is in its early stage a period of safety, one in which operation is successful." I may give two cases from my own experience. One was that of a young woman, aged 18 years, who after a day in town, where she had partaken of a couple of ices and later in the day of a raw apple, was seized early on the following morning with acute pain and vomiting and sickness. This subsided after 24 hours and her condition improved during the next 48 hours so that she was able to get up and to go about almost as usual. On the fourth day intense pain in the abdomen set in, the vomiting returned, and she was prostrate. The parents were urged by the medical attendant to have surgical assistance but this was refused until the fifth day of the illness and when I saw her the

[2] Annals of Surgery, vol. xxxii., p. 673.
[3] Ibid., vol. xxx., p. 634.
[4] Brit. Med. Jour., 1899, vol. i., p. 520.

condition was that of acute septic poisoning. The temperature was 100° F. and the pulse was 124. The abdomen was distended, with no sign of tumour or dulness, and, in fact, she presented a picture of virulent peritonitis. As a remote hope an operation was undertaken and a long, much distended appendix was found but her condition became so bad that it was not possible to remove it. The abdomen was washed out with saline solution and the appendix was packed round with strips of iodoform gauze. For 12 hours she showed a marked improvement but then aggravated symptoms set in and she succumbed 24 hours after the operation. The other case was that of a young man, aged 18 years, who after a bicycle ride on a certain Sunday was seized with acute abdominal pain while away from home. After 24 hours, however, he felt well enough to return home and he appeared to be doing well and remained in fair condition until 2 P.M. on the following Tuesday, when the pain and vomiting returned and his general condition was that of collapse. I saw him at 4 A.M. on the Wednesday and found his pulse uncountable, his temperature 101°, his abdomen distended, but with tenderness and an ill-defined mass in the right iliac fossa. On opening the abdomen I evacuated some foul pus from the right iliac fossa. After the operation his pulse improved somewhat and he expressed himself as being free from pain but he did not survive the operation for more than 24 hours.

These are instructive instances of the subtlety of these cases but the most striking cases that I have ever read of are those quoted by Sir Frederick Treves in his work on Perityphlitis at p. 27. He says that he has seen two cases of septic peritonitis, due to trouble in the appendix, run their entire course with a flaccid abdomen and with scarcely any tenderness. Both patients were men over 50 years of age. No morphia had been administered and in both cases death took place from toxæmia within seven days. One man spent some hours in applying massage to his own abdomen and the other drew frequent attention to the absence of tenderness by slapping the abdominal wall. In all these instances, although the usual train of symptoms of virulent mischief was not present, yet there was some one sign or other which subsequent investigation showed to afford sufficient grounds for surgical interference without delay. It may have been either that the remissions were never quite complete or that the usual course of things differed by the persistence of some symptom. Thus muscular rigidity—slight it may have been—may have persisted, peristalsis may have been absent, some tenderness may have been elicited on careful palpation, the pulse may have been out of proportion to the temperature, or the general appearance of the patient—deceptive though it may be to the casual observer—may have suggested to the experienced eye that all was not well. Again, it is extremely difficult to gauge the value of symptoms or signs slightly marked when the deceptive remission has been brought about either by drugs or by the application of ice-bags. As to what is the explanation of this quiescent period it is difficult to say, but in some cases where tenderness has been absent—as, for example, in cases of very acute appendicitis—it has been found that the appendix is gangrenous and that its nerves are therefore insensitive. And so it may be that in cases of acute general peritonitis the sensory nerves of the peritoneum are paralysed from the first. Doubtless there are other causes at work but it is not within the scope of this paper to discuss them.

A careful compilation of abdominal cases and the recording of clinical signs fortunately enable us to fix upon certain symptoms—even in obscure cases—as of great moment.

1. The most important information is gathered from repeated records of the *pulse and temperature*. These may rise together in due proportion: or there may be a slightly elevated temperature with an entirely disproportionate pulse-rate; or the temperature may be subnormal when taken on the surface, while the pulse may be greatly accelerated. It is this last condition that is more often met with during the latent period in very grave cases, and taken with a history of the onset of the attack it affords justifiable grounds for immediate operation. In all abdominal cases the pulse and temperature should be frequently taken, at least every three hours, although the disease appears to be quieting down. Remembering what has been said as to the probability of a successful issue to an operation if it be undertaken in the early part of the latent period, this inverse relationship of temperature and pulse should be observed at the earliest possible time. If the altered relationship has been established for a day or two, then the prospects of operation are extremely unfavourable, because by that time the patient has probably become saturated with septic products. Again, it may happen—as, for example, in the course of an attack of acute appendicitis—that after an initial rise of temperature and pulse there is a fall in both, succeeded after a few days by a rise. This indicates the presence of a considerable amount of pus, and unless the abscess be evacuated there is a grave danger of it bursting into the peritoneal cavity.

2. In the case of the perforating duodenal ulcer which I have quoted there was no vomiting or severe pain and the patient was able to remain at his work, *rigidity*, with some tenderness, being the only definite symptom; but on opening the abdomen it was found that there was acute peritonitis present, and perhaps of all the physical signs a transient or a persistent rigidity and the absence of other symptoms are the most valuable and they become convincing when signs of intestinal peristalsis are absent.

3. It is difficult to speak of *distension* as a symptom taken by itself, for it is often absent in the early stages, even in so serious an affection as a perforating gastric ulcer; but in the late stages of abdominal diseases the fatal significance of it is only too well known. But distension which persists for longer than for from 24 to 36 hours and is unrelieved by treatment such as a turpentine enema is of grave moment.

4. As a rule, *vomiting* is quite absent during the quiescent period. It is true that at the beginning of the illness there may have been vomiting but at the "period of repose" the vomiting has subsided; it may be because the stomach has been emptied of its contents by the initial sickness or because the vomiting has been kept in check by the administration of sedatives. But if the vomiting recurs in spite of careful feeding, careful nursing, and more especially if it persists after the administration of sedatives, the symptom is not one to be under-estimated.

5. A great deal of careful work has been done on the subject of *leucocytosis* of late, and not only on leucocytosis but on the condition of the blood generally in abdominal affections. Dr. Da Costa[5] states as the result of his researches that in an appendicular abscess the number of leucocytes per cubic millimetre present in the blood may be from 15,000 to 20,000, the normal number of leucocytes being from 5000 to 7000 per cubic millimetre and rising to 12,000 at the height of digestion after a good meal. He further adds that if the pus focus be walled off and no absorption of toxic material takes place, then there may be no rise in the number of leucocytes, but otherwise in purulent appendicitis their number may vary from 14,000 to 58,500, and he found the average in purulent cases to be 17,450. In perforative appendicitis there is a very abrupt rise of leucocytes and counts of over 20,000 indicate either pus, gangrene, or peritonitis. If the number be under that the deduction is uncertain, for in 35 per cent. of non-purulent cases there is merely a small increase in leucocytosis. As showing, however, that even this sign is not to be absolutely relied upon, Dr. Da Costa states that in some septic cases arising from appendicular trouble there is an absence of leucocytosis, and if this occurs it is a symptom of very grave importance. From a diagnostic point of view it should be remembered that leucocytosis is absent in typhoid fever but is almost invariably present in ovarian abscess, pyosalpinx, perinephritic and nephritic abscesses, and in suppuration generally. Dr. J. T. Finney,[6] writing on perforating ulcer of the stomach, quotes Dr. Cabot who states that leucocytosis is never seen in the course of gastric ulcer except after severe hæmorrhage and at the height of digestion. The presence of leucocytosis when the influence of bleeding and digestion is excluded is "practically unknown in uncomplicated gastric ulcer." When, therefore, grave symptoms occur in a young woman with a history of previous digestive disturbance, together with a sudden development of marked leucocytosis, the indications for immediate surgical interference are imperative. A most instructive article on the leucocyte count in surgery is given by Dr. Theodore Dunham.[7] He gives many interesting details, some of which are as follows. There is considerable leucocytosis after the administration of ether. In acute cervical adenitis in an infant, aged seven and a half months, the leucocyte count was 9800 and with a mastoid abscess 24,800, and with a gangrenous appendix 17,000, rising next day

[5] American Journal of the Medical Sciences, vol. cxxii., p. 645.
[6] Annals of Surgery, vol. xxxii., p. 6.
[7] Ibid., vol. xxxi., p. 669.

to 19,000. In another case the appendix was operated upon and the day after operation the count was 11,700, and on the following days it was 14,500, 16,900, and 22,100. Meanwhile the dressings, the temperature, the pulse, and the respirations gave no distinct indication of anything wrong, but at the dressing after the last-named count a large quantity of pus had found its way into the wound.

Mr. J. H. Hebb has very kindly made some observations for me at the Westminster Hospital upon leucocyte counts in various conditions, suppurative and non-suppurative. A male patient was admitted suffering from appendicitis with a temperature of 99° F. The leucocyte count was 11,562 (finely granular 54, coarsely granular 17, hyaline 9, and lymphocytes 20 per cent). This case subsided without suppuration and did well. A female patient was admitted on Feb. 15th suffering from suppurative pelvic cellulitis. The leucocyte count was 22,500. On March 1st, when the suppuration was subsiding, the count was 15,625. A female patient suffered from pelvic cellulitis and a very extensive abscess on the outer side of the thigh, which had made its way from the pelvis through the great sciatic notch. The temperature was 98° F. On admission leucocytosis was 13,128 (finely granular 43, coarsely granular 4, hyaline 10, and lymphocytes 43, per cent.). On March 3rd, when the suppuration was less, the count was 11,560 (finely granular 64, coarsely granular 5, hyaline 6, and lymphocytes 25, per cent.). So far, then, it may be said that in the leucocyte count frequently made in the course of the illness there was a very valuable indication that grave mischief was going on even when the other symptoms were quiescent or latent and this method of clinical investigation promises to be one of the utmost value.

6. In regard to *chest complications*, in a patient who began his illness with symptoms referable to the abdomen but who remains ill although the symptoms in that region have apparently subsided careful examination of the chest and the detection of either a pleuritic rub or the presence of fluid in either of the pleural cavities may serve as an indication that mischief is still going on in the abdominal cavity and that exploratory operation is called for. In Dr. J. Mitchell Bruce's excellent Hunterian lecture, delivered in November of last year, the subject is fully dealt with and he quotes an instructive case of pleurisy and perigastric abscess which was operated upon by Mr. Rickman J. Godlee who found serous fluid in the left chest and a perigastric abscess below the diaphragm. A somewhat similar condition is met with in cases of appendicular trouble where the abscess has tracked up into the renal regions and associated with it fluid has been found in the chest. It may be that the trouble has almost, if not quite, subsided in the region of the appendix and what has to be dealt with is a continuous lymphatic infection in the post-abdominal connective tissue and extending through the lymphatics to the diaphragm and so causing chest symptoms. The detection of fluid in the chest, especially on the right side, may lead on exploratory operation to the further detection of a collection of pus, either sub-diaphragmatic or situated deeply in the flank.

The remarks which I have made on this difficult clinical subject are, I fear, fragmentary and imperfect, but if they lead to a more thorough investigation of that all-important period—latent, quiescent, or reposeful—I feel that what has been written may be of some service.

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SOME OF THE SURGICAL ASPECTS OF GLYCOSURIA AND DIABETES.[1]

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ON referring to old surgical case-books it is not unusual to find a clinical history ending with the statement that no operation was performed as the patient was suffering from glycosuria. Surgical text-books still advise that when diabetes is present no active surgical measures should be undertaken unless urgently required. Since, however, the word "urgency" is capable of widely diverse interpretations it is advisable to study the results that have been obtained after operations upon diabetics and the causes of failure in order to define the limits of surgical interference. In the pre-antiseptic era most of those diabetics who came under the hands of a surgeon were suffering from gangrene or carbuncle and therefore in many cases already affected with some form of septic poisoning. It is not, therefore, surprising that the mortality was high and thence arose the dictum still found in most text-books.

[1] A thesis read on August 9th, 1901, for the degree of M.D. Camb

CLASSIFICATION OF THE CAUSES OF GLYCOSURIA.

In many instances it is very difficult to distinguish between temporary or non-diabetic glycosuria and true diabetes; this is especially so in the presence of surgical complications, and were the presence of sugar to be taken as due to the existence of diabetes in all cases then doubtless many patients would die unrelieved. Various classifications have been drawn up, the best of which, from a surgical standpoint, is that by Smith and Durham, though in some respects deficient. The following is therefore proposed: (1) those cases in which glycosuria is caused by the surgical lesion; (2) those cases in which it causes the surgical lesion; (3) those cases in which the two are independent and do not influence each other; and (4) those cases in which glycosuria exerts a baneful influence upon the other disease or injury. Glycosuria may be merely temporary, apart from surgical diseases or injuries, as after certain drugs, as opium or chloroform (the toxic form), or it may be of alimentary origin. A diagnosis is often impossible, transitory glycosuria passing imperceptibly into true diabetes. A good instance of the toxic form is recorded by Marmaduke Sheild of a man who had taken morphia for years and sustaining a fracture of his patella underwent the operation of wiring. Sugar (not glycuronic acid) was subsequently discovered which disappeared gradually on the withdrawal of the morphia. Convalescence was uninterrupted.

CLASS 1.

Glycosuria has been noticed as a complication of a great variety of surgical ailments and injuries, the causes falling into two main groups—injury and sepsis; other less frequent causes also occur. Redard classified them into the following groups: (1) injury of the central nervous system; (2) other injuries, such as fractures and operations; (3) inflammation; (4) cellulitis, lymphangitis, and erysipelas; (5) carbuncle; (6) gangrene; and (7) septicæmia. In almost all his cases the amount of sugar was small and usually quite transitory, the amount varying from 0·1 to 2·29 per cent. and generally also accompanied by albuminuria and slight polyuria. Smith and Durham add to these certain cases of ulcerated new growths and consider that the sugar is secondary to the sepsis present. They quote one of Redard's cases as bearing out this hypothesis, in which 0·4 per cent. sugar was present the first day, 0·18 per cent. the second day, but none the third day (epithelioma of the tongue). More recently many cases of intra-abdominal or intra-pelvic disease have been published in which glycosuria, apparently secondary, existed; but its duration was months and they closely simulated diabetes in other respects (thirst, polyuria, &c.). After operation, aided in some instances by general treatment, the sugar and the other symptoms permanently vanished. These cases differ extremely from those recorded by Redard and others and require close attention. They may be divided into two classes: (1) septic cases, and (2) non-septic cases.

1. *Appendicitis* (Table I.).—Leidy reports three cases and Cohen one of appendicitis, in two of which suppuration was present, which were complicated by glycosuria. In Leidy's first case 2·5 per cent. of sugar was found, expectant treatment was adopted, and recovery resulted; six months later and four years later sugar was entirely absent. In Cohen's case it lasted three months, disappearing as an abscess healed.

Pyosalpinx.—Imlach records a case in which polyuria, thirst, and constipation were present a month before the patient came under observation, the resemblance to diabetes being therefore great. Under diet the amount of urine fell to from five to six pints per diem; during the next month the sugar dropped from 2500 grains per diem to 1200 grains. Within a week of the removal of a pyosalpinx sugar permanently disappeared.

2. *Strangulated hernia.*—Neugebauer has reported two cases accompanied by glycosuria. Both were operated upon, the first without an anæsthetic on account of supposed diabetes; both recovered, the sugar disappearing the next day. In the second case 90 centimetres of small intestine were resected. After his first case he performed a species of

TABLE I.—CASES OF APPENDICITIS ASSOCIATED WITH GLYCOSURIA.

No.	Reference.	Sex and age.	History.	Condition whilst under observation.	Urine.	Treatment.	Result.	After history.
1	Leidy.	Female; 29 years.	At the age of 23 years the patient suffered from obstruction of the bowels and had had many attacks of pain in the right iliac fossa since.	A lump and a sinus leading to a fæcal concretion; right iliac fossa; the concretion discharged on the third day after admission.	Specific gravity, 1032; alkaline; 2·5 per cent. of sugar; no albumin.	Expectant.	Gradual recovery and a decrease in the amount of sugar.	Six months later no sugar; four years later no sugar.
2	,,	Female; 46 years.	Pain in the right iliac fossa; sickness; constipation.	Temperature, 103·4° F.; pulse, 110. A swelling in the right iliac fossa.	Specific gravity, 1028; much sugar; a trace of albumin. The amount of sugar varied whilst in hospital.	,,	Not stated; presumably recovered.	
3	,,	Male; 25 years.	Many previous attacks. The present attack started six months before and gradually subsided; a relapse later.		Specific gravity at first 1032; sugar; a trace of albumin; the sugar disappeared during convalescence and reappeared periodically.	,,	Recovery.	During the last four weeks in hospital sugar was only discovered once.
4	Cohen.	Male.	Appendicitis first started in February with glycosuria but no polyuria or polydipsia. An abscess formed which was opened on April 4th. Much foul pus was evacuated. The patient at the time was much emaciated. Two days later there was still much glycosuria.		Sugar was present in February, March, and part of April.	Expectant at first, then the abscess was opened.	,,	In five weeks the patient was quite well. The glycosuria had disappeared.

experiments and found that if all the intestine was ligatured or the upper part of the jejunum glycosuria resulted. He attributes the rareness of its occurrence in strangulated hernia to the infrequency of strangulation of the upper part of the jejunum. In his cases the hernia was very large and contained almost the whole of the small intestine. (Glycosuria complicating strangulation may be commoner than is supposed but may be overlooked through neglecting to examine the urine.)

Ovarian tumours.—Croom has published the clinical history of a patient who was affected with a large colloidal ovarian tumour. Her urine contained a trace of albumin and "much" sugar; its specific gravity was 1047. Diet and morphia being of no avail in reducing the sugar the tumour was removed. In two months the patient was quite well, having no trace of sugar in her urine. Diet was, however, still maintained. The tumour weighed 58½ pounds. Beyea has recorded a similar case in which 7 per cent. of sugar was excreted in the urine, with all the symptoms of diabetes. A month after the removal of the tumour only 4 per cent. sugar was present and in six months it had permanently disappeared under treatment. The tumour weighed 22 pounds and was also colloidal.

These cases are of the greatest importance, being on the borderland of diabetes. The probable cause of the glycosuria in the last two cases was the increase in the intra-abdominal pressure, the tumours being of great size. General treatment was adopted in addition to the surgical measures. The presence of sugar in no way interfered with convalescence. It must be concluded, therefore, that in such cases, even though the *symptoms* of diabetes be present, an operation is not contra-indicated.

Glycosuria complicating spreading traumatic gangrene (personally observed).—A printer, aged 48 years, was admitted in July, 1900, to St. Bartholomew's Hospital under the care of Mr. H. T. Butlin suffering from a lacerated wound of the left arm and forearm the result of injury in a printing machine. The skin had been torn up and the soft parts were much bruised. No sugar was present in his urine and there was no history of diabetes. The next day the arm was cold and slightly emphysematous. Sugar was now present in his urine. The discolouration of his skin spread and the temperature rose to 103·8° F. in the evening. The next day his arm was removed at the shoulder joint by a posterior quadrilateral flap; there was much hæmorrhage (? high division of the artery). Gas and ether were administered and the wound was lightly closed. The day after the operation the temperature came down and 2·5 per cent. sugar was present. The amount of sugar varied, being 3·3 per cent. a week after the operation. The wound, save for a small slough, gradually healed and the sugar permanently vanished. He was seen again in December but no sugar was present. There was much difficulty in the estimation of the sugar as the cuprous oxide would not precipitate properly. No special diet was adopted and no special drug treatment. A gas-producing anaerobic bacillus was cultivated but not identified.

CLASS 2.

It is doubtful whether diabetes can directly cause any lesion requiring surgical treatment except balano-posthitis and possibly cataract. So-called diabetic gangrene is rather gangrene occurring in a diabetic subject, the influence of diabetes being indirect through arterio-sclerosis or nerve degeneration, the result of the constitutional affection. Carbuncle is to be regarded in the same light. Such patients respond badly to injuries, whether surgical or accidental. Balano-posthitis is, however, due to the irritation of the sugar-containing urine. Smith and Durham have collected from French authors seven cases in which circumcision was performed, with six recoveries, one after extensive sloughing and erysipelas. The fatal case was due to wide-spreading sloughing and gangrene of the integuments, the result of the operation. The best results were obtained by Francon who practised the most rigid antisepsis then known. As a precautionary measure Lauder Brunton has advised careful sponging of the prepuce and glans after each act of micturition in order to remove all trace of urine. As regards cataract Legendre has collected 102 operations with 99 successes (Laisney's cases).

CLASS 3.

This is, from the surgical standpoint, the most important group of cases, as it contains most new growths, fractures, and other injuries occurring in diabetics. The existence of diabetes may at the time be unknown, as the disease may be intermittent. The patients may appear perfectly healthy, but they are more often stout and otherwise unfavourable subjects for operation (*diabète gras*). For convenience of reference the cases will be arranged regionally.

Operations on the Face and Mouth.

Two parotid tumours have been unsuccessfully excised. In the case recorded by Verneuil in 1878 after a tedious operation erysipelas set in on the fourth day and death occurred on the eighth day as the result of secondary hæmorrhage from the external carotid. The operation was not performed until general treatment had caused the sugar to disappear. It reappeared after the operation. In the other instance the operation was quite simple but the patient died in coma on the third day. Diabetes was not discovered beforehand. Redard successfully removed a myeloid epulis by the thermo-cautery without an anæsthetic. Preliminary

TABLE II.—OPERATIONS ON THE FACE, MOUTH, &c.

No.	Sex and age.	Reference.	Disease.	Operation.	Result.	General treatment.	Remarks.
1	Male; 45 years.	Verneuil (Bulletin de la Société de Chirurgie, 1878).	Parotid tumour.	Excised. Serious operation.	On the fourth day erysipelas. On the eighth day hæmorrhage from the carotid. Death.	Adopted until the sugar had disappeared.	Diabetes two years. 3 per cent. of sugar. The sugar reappeared after the operation.
2	Male; 62 years.	Polaillon.	,,	Excised. Easy operation.	Coma on the third day. Death.	—	Diabetes unknown before the operation. Chloroform was the anæsthetic. Sugar was found on the appearance of coma.
3	Male; 68 years.	Tuffier.	Epithelioma of the floor of the mouth; adherent to the mandible; ulcerated; had been cauterised several times previously.	Removed.	Left lobar pneumonia on the fifth day. Death on the seventh day.	Adopted until the sugar had disappeared.	0·2 to 0·3 per cent. of sugar before the operation; traces after. Smith and Durham threw doubt on the nature of the glycosuria.
4	Male; 47 years.	Hedard.	Myeloid epulis of the lower jaw; rapid growth.	Removed by thermo-cautery.	Recovery.	Adopted as a preliminary. Diabetes for two years. 3·77 per cent. of sugar.	Before the operation the total amount of sugar per diem was from 13 to 29 grammes. It rose to 73 grammes on the sixth day after the operation and then fell.
5	Male; 62 years.	Verneuil (Bulletin de la Société de Chirurgie, 1884).	Epithelioma of the palate.	Removed by thermo-cautery after incising the cheek.	Hæmorrhage two hours later. Next day pneumonia and coma. Death.	—	Diabetic; alcoholic; 7·6 per cent. of sugar.
6	Male; 50 years.	Verneuil.	Epithelioma of the soft palate and the tonsil.	Cauterised with chromic acid.	Recovery.	Treatment did not diminish the sugar.	Diabetes seven years. 4·6 per cent. of sugar; urine, 2·75 litres. No recurrence. Death two months later.
7	Male; 65 years.	Richelot.	Epithelioma of the inner surface of the cheek.	Removed together with an enlarged gland.	Slight suppuration in the cervical wound. Recovery.	Adopted. Reduced the percentage of sugar from 4 to 3·3 and the urine from three to 1·5 litres.	Old diabetes. Carbuncle seven years previously.
8	Female; 64 years.	Mannoury.	Epithelioma of the mouth.	Removed by thermo-cautery after slitting the cheek.	Gangrene of the skin (emphysematous) spread all over the head. Death.	—	Three years' history of diabetes elicited on the occurrence of sepsis. 8 per cent. of sugar.
9	Male; 64 years.	Tuffier.	Epithelioma of the tongue and the pillar of the fauces.	Removed by thermo-cautery.	Recovery.	Adopted for 15 days. The sugar vanished.	Intermittent diabetes two years. 0·4 per cent. of sugar. The sugar reappeared after the operation.
10	Male; 52 years.	,,	Epithelioma of the tongue.	,,	,,	Adopted until the sugar had vanished.	Intermittent diabetes four years. Sugar reappeared on the day after the operation. 0·8 per cent. on discharge.
11	Male; 50 years.	Verneuil (Bulletin de l'Académie de Médecine. 1881).	Epithelioma of the tip of the tongue.	,,	Secondary hæmorrhage on the sixth day. Bronchitis. Recovery.	Adopted for about 10 days beforehand.	Sugar fell to 0. Total sugar before 5·4 grammes.
12	Male; 32 years.	Tuffier.	Epithelioma of the border of the tongue.	,,	Slight secondary hæmorrhage. Recovery.	Adopted until the sugar had disappeared (a few days).	0·4 per cent. of sugar. Smith and Durham consider this to be glycosuria consequent on ulceration. Such was probably the case.
13	Male; 72 years.	Fischer.	Epithelioma of the lip.	Removed.	Recovery.	Adopted for from four to five months before operation.	Sugar diminished from 3·45 per cent. to 0.
14	Male.	Reynier.	Epithelioma of the lower lip.	,,	The wound broke down partially. It healed in one month. Recovery.	No mention.	The amount of sugar was at first 60 grammes. At the time of the operation it was from 10 to 15 grammes.
15	,,		Epithelioma of the lip.	,,	Recovery.	—	Atheroma; alcohol; syphilis.
16	Male; 58 years.	,,	—	Excision of the eye.	,,	Adopted. Caused the sugar to disappear.	—
17	Male; 32 years.	,,	Sebaceous cyst on the neck of the size of an orange.	Removed.	,,	—	"Diabétique gras."

TABLE III.—OPERATIONS ON THE BREAST.

No.	Sex and age.	Reference.	Disease.	Operation.	Result.	General treatment.	Remarks.
1	Male; 50 years.	Fischer, 1876.	Scirrhus (ulcerated).	Amputation. Glands removed.	Cellulitis on the second day. Gangrene of skin of back. Recovery.	Adopted on the discovery of sugar. Carbolic acid internally.	2·2 per cent. of sugar.
2 a.	Female; 56 years.	Tuffier.	Scirrhus of the right breast.	Amputation.	Recovery.	Adopted for some months previously.	Glycosuria three years. On the fifteenth day 0·3 per cent.
2 b.			Recurrence in the glands nine months after.	Glands excised.	,,		
3	Female; 61 years.	Rosenberger, 1882.	Scirrhus of two years' history.	Amputation.	Most of the wound healed by first intention, but on the fourteenth day sepsis from the drainage wound occurred. Death.	Had been adopted some years before.	Diabetes six years.
4	Female.	Berger.	Encephaloid of the right breast.	Amputation. The glands were also removed. No attempt was made to close completely the wound.	Recovery.	Adopted until the sugar had disappeared.	Severe diabetes 10 years. 4 to 5 per cent. of sugar. Died. Two ovarian growths four months later.
5	Female, 50 years.	Noble.	Scirrhus.	Amputation. The glands and the pectoral fascia were removed.	Slight axillary suppuration. Recovery.	Diabetes was not discovered until after the operation.	
6	Female, 65 years.	Willett (St. Bartholomew's Hospital Surgical Register, vol. i., 1896).	Scirrhus (left).	Amputation. The glands were also removed.	Healed mainly by first intention. A small abscess was found on the tenth day. Recovery.	Presumably dieted as she was transferred from a medical ward.	Diabetes seven years. 4·5 per cent. to 2·25 per cent. of sugar. Total per diem 45·5 grammes to 16·23 grammes.
7	Female.	Willett (private case).	Scirrhus.	Amputation.	Recovery.	Diabetes was discovered after the operation. very stout patient.	
8	,,	Lilienthal.	,,	,,	,,	—	Sugar persisted.
9* a.	Female; 61 years.	Fisk, August, 1895.	Scirrhus (ulcerated), right breast.	Amputation after Halsted's (?) method.	—	Not adopted.	Diabetes. 2·5 per cent. of sugar. Ether.
9* b.	—	—	—	Thiersch's skin-grafting 14 days later.	—	—	—
9* c.	—	March, 1898.	Small recurrence.	Removed.	—	—	Cocaine.
9* d.	—	November, 1898.	Fresh ulcerated recurrence.	Excised with portion of a rib.	Granulated up.	—	2·2 per cent. of sugar. Still alive in August, 1899.
10	Female; 64 years.	Tuffier (No. 11), 1881.	Carcinoma of the right breast. 18 months.	Amputation.	Erysipelas. Death on the fifth day.	—	No sugar before the operation. Urea, 1·8 per cent. After the occurrence of erysipelas "much sugar." Smith and Durham consider the glycosuria to have been caused by the occurrence of erysipelas.
11 a.	Female; 64 years.	Le Conte (details by letter), 1899.	Recurrent scirrhus. The breast had been removed three years before with the glands.	Free excision of recurrence. The second and third ribs were involved but were not removed. A large operation, skin-flaps being necessary.	Recovery.	—	Ether. From 4 per cent. to 11·5 per cent. of sugar present.
11 b.	—	—	Six months later another recurrence.	Excised.	,,	—	Ether. No sugar.
12	Female.	Reynier.	Carcinoma of the mamma.	Amputation.	,,	Adopted. Total sugar per diem reduced from 35 grammes to 11 grammes. As the result of the operation the sugar rose again to 28 grammes. Atheromatous vessels.	
13	—	,,	—	,,	,,	Atheromatous vessels.	
14	Female.	Reynier (with Dr. Marieux).	—	,,	,,	Diabète gras.	
15	Female; 61 years.	Butlin (St. Bartholomew's Hospital Female Surgical Register, vol. iv., 1900, p. 432).	Scirrhus (in small spheroidal cells).	Amputation of the breast with free removal of the skin and some of the pectoralis major. March 2nd, 1900.	,,	Drained for two days. Convalescence was uneventful. Tumour in the upper and inner quadrant of the breast. The skin was adherent but not ulcerated. Diabetes was first detected in June, 1899. Some sugar in the urine on the day of admission to hospital; none on the day of operation, or after. A stout subject. No special diet, or medicinal treatment.	

* This patient underwent four operations successfully and was alive four years later, although the primary growth was ulcerated to the extent of two inches by one and a half inches.

TABLE IV.—OPERATIONS ON THE FEMALE GENERATIVE ORGANS.

No.	Age.	Reference.	Disease.	Operation.	Result.	General treatment.	Remarks.
1	33 years.	Matthews Duncan (Sir John Williams's case).	Rupture of the perineum into the rectum.	Perineorrhaphy eight months after the rupture. (Primary operation having failed.)	Recovery.	Adopted.	Diabetic symptoms present on and off for 13 years during pregnancies.
2	—	Baldy. (Unpublished case.) By letter. 1900.	Prolapsus uteri. Lacerated cervix.	Cervix repaired. Curetting. Plastic operation on the anterior and posterior vaginal walls.	,,	Strict preliminary dieting, &c.	2·5 per cent. of sugar. A trace on discharge.
3	—	,,	Procidentia, &c.	Amputation of the cervix. Plastic operation on the anterior and posterior vaginal walls. Ventrofixation.	,,	,,	About 2·5 per cent. Discharged in three weeks.
4	—	Baldy (*vide* discussion on Noble's paper).	Procidentia.	Plastic operation.	,,	—	"Much sugar."
5	—	,,	,,	,,	,,	—	,,
6	—	,,	Complete tear of the sphincter ani.	Perineorrhaphy.	,,	Sugar and opium reduced whilst in hospital.	Diabetic and opium-eater for years. Six years later still diabetic.
7	48 years.	Kleinwächter.	Fungous endometritis. Lacerated cervix with erosion. Warts on the vulva.	Curetting. Repair of the cervix. Removal of warts.	Wound healed rather slowly; recovery.	—	Thirst; polyuria. Sugar disappeared under dieting. Two years later well, probably diabetic.
8	—	Landau.	Torsion of an ovarian cyst.	Ovariotomy.	Recovery.	—	Emergency operation. Diabetes only discovered after the operation.
9	—	,,	Ovarian cyst.	,,	,,	Dieting until an irreducible minimum of sugar was reached.	Rigid antisepsis. One and a half years later still a small sinus in the wound.
10	—	,,	,,	,,	,,	,,	Rigid antisepsis.
11	?	Loeb (Schröder's case).	Double dermoid ovary.	,,	Death.	—	A sister also diabetic. A very difficult and tedious operation on account of numerous adhesions.
12	68 years.	Reynier.	Malignant disease of the ovary.	,,	Death on the fortieth day.	—	The wound apparently progressed favourably, but on the fourteenth day it gaped and the intestines protruded. It was re-sutured but did not unite. Death resulted on the fortieth day.
13	60 years.	Kreutzmann.	Epithelioma of the cervix.	Vaginal hysterectomy.	Recovery.	Diet reduced. Sugar before the operation.	Chloroform. Easy and rapid operation. The diet was continued after, sugar only reappearing in small quantities from time to time.
14	47 years.	Landau.	Carcinoma uteri.	Vaginal hysterectomy (22 minutes).	Coma on the second day. Death.	—	Diabetes for one year. Sugar entirely absent before the operation. No symptoms present. Marked euphoria. Strict diet had been employed earlier in the year.
15	63 years.	Landau (unpublished). Letter, 1901.	Carcinoma cervicis uteri.	Vaginal hysterectomy, Dec. 8th, 1900.	Recovery.	Carbohydrates withheld.	3 per cent. of sugar. Chloroform. Discharged on Dec. 31st, 1900. The diet did not diminish the sugar.
16	50 years.	Noble.	Procidentia uteri. Small ovarian tumour.	Vaginal hysterectomy and anterior colporrhaphy.	Death on the sixth day. Coma.	Diet, codeine, and strychnine.	Glycosuria for three years. No symptoms. Specific gravity of urine, 1026; sugar, 2·5 per cent. Diet, &c., reduced it to 1·75 per cent.
17	38 years.	Gottschalk (Berlin). Details by letter, 1901.	Fibroids. Uterus.	Abdominal hysterectomy, 1893.	Recovery.	Carlsbad regimen.	Uterus reached 14 centimetres above the umbilicus. Much hæmorrhage from the uterus. 1 per cent. of sugar in 1893; 0·6 per cent. in 1901. Chloroform.
18	47 years.	Landau (unpublished). Letter, 1901.	Intramural myoma of the size of a man's head.	Abdominal enucleation, Feb. 2nd, 1901.	,,	Diet.	Slight suppuration in the wound. Sugar, 0·5 per cent.; unaffected by diet. Discharged March 21st, 1901. Chloroform.
19	53 years.	,,	Multiple fibroids. Umbilical hernia.	Abdominal hysterectomy (the right ovary left behind). Radical cure of the hernia.	,,	,,	Wound healed by first intention. Diet removed the sugar (0·5 per cent.). Operation on Feb. 27th, 1901; discharged on March 21st, 1901. Chloroform.

TABLE IV.—OPERATIONS ON THE FEMALE GENERATIVE ORGANS—(*Continued*).

No.	Age.	Reference.	Disease.	Operation.	Result.	General treatment.	Remarks.
20	—	Reynier.	—	Abdominal and vaginal hysterectomy.	Recovery.	—	The wound gaped on the thirteenth day and was re-sutured, recovery eventually resulting.
21	"Young."	Noble (Norris's case).	—	Curetting.	Coma. Death on the third day.	—	—
22 a.	54 years.	Champneys (unpublished). St. Bartholomew's Hospital Register, vol. vi., 1896.	Epithelioma vulvæ.	Excised.	Recovery.	—	After the second operation (on the glands) the patient removed her dressings and slight suppuration resulted. Specific gravity of urine, 1035; sugar, 4·5 per cent.
22 b.	—	—	Glands enlarged.	,,	,,		
23	55 years.	Kleinwächter. Zeitschrift für Geburtshülfe and Gynäkologie, Band xliv.	Myoma of the uterus. Umbilical hernia.	Removal of the tumour (polypoid) p. v. Curetting.	,,	Adopted beforehand (sent to Karlsbad).	Sugar from 1·4 to 3·2 per cent. Absent at the time of the operation. Recurred afterwards from injudicious food. Diabetes.
24	48 years.	Giles.	,,	Hysterectomy. Radical cure of the hernia.	,,	—	5 per cent. of sugar but no symptoms of diabetes. Sugar persisted for one week after the operation. Discharged cured in three weeks.
			Cases in which Diabetic Symptoms which were previously present disappeared after Operation.				
25	53 years.	Croom.	Colloidal tumour of the ovary. Weight, 56½ pounds.	Ovariotomy.	Recovery.	Before the operation general treatment and morphia had no effect. After the operation, under general treatment, the sugar gradually vanished.	Specific gravity of the urine, 1047; much sugar. 14 days after the operation the sugar began to diminish. In two months it was absent.
26	52 years.	Noble (Beyea's case), discussion. *Vide* also Beyea's paper.	Multilocular pseudo-mucinous oöphoritic cystadenoma. Weight 22 pounds.	,,	,,	After the operation general treatment was adopted; four weeks after the operation there was only 4 per cent. of sugar. Treatment was continued and in six months there was no sugar.	The urine contained 7 per cent. of sugar. All the symptoms of diabetes were present. The urine excreted by day contained from 60 to 80 per cent. of the total sugar excreted.
27	31 years.	Imlach.	Double pyosalpinx.	Appendages removed.	,,	One month's history of thirst, &c. Polyuria. Specific gravity of urine 1036; much sugar. Dieting, &c., reduced the urine to from five to six pints, with total quantity of sugar 2560 grains in the 24 hours. Three months later there were 1200 grains of sugar in the 24 hours. Operation performed. In a week the sugar had permanently vanished.	

treatment reduced the percentage of sugar from 3·77 to 1. There was a marked increase in its amount after operation. Three epitheliomata of the lip have been successfully removed. In Fischer's case the patient was treated medically for about five months before operation to reduce the amount of sugar. In one of Reynier's cases an enlarged gland was removed at the same time; the resulting wound suppurated slightly. Five patients suffering from epitheliomata of the cheek or palate have been subjected to operation, two of whom recovered (the operation in one, however, was merely destruction of the growth with chromic acid). In one of the fatal cases a history of diabetes was only elicited on the occurrence of sloughing. The cheek was slit to allow of free removal by the thermo-cautery. Emphysematous gangrene appeared and it spread all over the head; 8 per cent. of sugar was discovered. In another case the patient succumbed to pneumonia on the fifth day after the removal of a growth involving the lower jaw; from 0·2 to 0·3 per cent. of sugar previously present disappeared under medical treatment. The third fatal case was that of an alcoholic patient whose urine contained 7·6 per cent. of sugar; pneumonia occurred and death followed from coma. Three operations for epitheliomata of the tongue have been recorded. In each the tongue was removed by the thermo-cautery and the patient recovered. Secondary hæmorrhage occurred in one case on the separation of the sloughs. Previous medical treatment was adopted in all. Tuffier quotes another instance in which 0·4 per cent. of sugar was present before the operation, which disappeared under preliminary treatment. After the removal of the growth there was a slight attack of secondary hæmorrhage but the patient recovered. Smith and Durham undoubtedly correctly interpret this case as one of glycosuria secondary to ulceration of a new growth. Reynier records the excision of an eye with recovery. Diet caused the sugar to disappear. He also refers to the removal of a sebaceous cyst from the neck. The cyst was of the size of an orange. He does not state if preliminary treatment had been adopted. Two or three other sebaceous cysts have been removed with success, but the operations were so small that no notice is taken of them in this paper. Thus, of 16 cases 11 recovered, or a percentage of 68·75. Of the purely mouth and lip cases nine out of 12 recovered, yielding a percentage of 75. (*Vide* Table II.)

Operations on the Breast.

There are to be found in medical literature the records of 11 patients suffering from glycosuria who have undergone operations for malignant tumours of the breast. To these must be added two others operated upon by Mr. Willett, one at St. Bartholomew's Hospital and one in private practice, and one operated upon by Mr. Butlin. Further, Dr. Le Conte of Philadelphia has furnished by letter particulars of another case in which a recurrent scirrhus was twice removed; the first recurrence necessitated an extensive operation, with plastic work to close the wound. The percentage of sugar in this case reached, a few days after operation, the high figure of 11·5, but no special medical treatment was adopted. In Fisk's case a woman, aged 61 years, had an amputation of the breast performed for an ulcerated scirrhus in 1895. The operation was a complete one after the manner of Halsted. The urine contained 2·5 per cent. of sugar. No preliminary treatment was adopted before operation. Ether was employed as the anæsthetic. Two weeks later the now granulating area was covered by Thiersch skin grafts. In March, 1898, a small recurrent nodule was removed from the scar under cocaine. The

urine still contained sugar. In November, 1898, a small ulcerated patch was excised from the old scar, together with a piece of the underlying rib; she left the hospital with a granulating wound. The percentage of sugar was then 2·2. In August, 1899, she was still alive and well. In this case no special precautions were taken against coma nor is there any mention of the amount of ammonia excreted. Two of the cases were fatal, one from erysipelas (in 1881), which Smith and Durham do not consider to be a true case of diabetes but to be one of glycosuria consequent on the attack of erysipelas, though the amount of sugar is stated to have been high; the other from secondary septic infection of the track of the drainage wound on the fourteenth day. (The latter case occurred in 1882.) In six cases the glands were stated to have been removed. In at least three of the cases that recovered suppuration occurred. In the only male case of the series cellulitis and extensive gangrene of the skin over the side and back led to the discovery of diabetes but this quickly healed on the adoption of general treatment and carbolic acid internally. In no instance is there any mention of the amount of ammonia or of the use of sodium bicarbonate. Thus, of 15 patients 13 recovered. The number of operations performed upon them was 19, the percentage of patients recovering being 86·6 and the percentage of successful operations 89·47. (*Vide* Table III.)

Operations on the Female Generative Organs.

Three vaginal hysterectomies in the presence of diabetes have been performed for carcinoma (Professor Landau of Berlin having kindly furnished the notes of one unpublished case). In one instance the patient died comatose, coma being apparently induced by the anæsthetic. One of the others died eight months later from recurrence; general treatment at the time of the operation caused considerable diminution in the amount of sugar. The third patient was operated upon in December, 1900, by Professor Landau under chloroform. Convalescence was uninterrupted. The percentage of sugar was 3 in spite of a carbohydrate-free diet. A vaginal hysterectomy for procidentia was fatal on the sixth day from coma. Two abdominal hysterectomies for fibroids were quite successful; one was complicated by an umbilical hernia which was cured at the same time. In this case 5 per cent. of sugar previously present disappeared under appropriate treatment. An abdominal enucleation of a large fibroid was eventually successful though the wound did not run a quite aseptic course; the percentage of sugar in this case was uninfluenced by diet (unpublished case furnished by Professor Landau). Kleinwächter has recorded the removal of a polypoid fibroid per vaginam with a simultaneous curetting in a woman, aged 55 years, in whom the menopause had occurred five years before. She was corpulent and somewhat hysterical. There had been a suspicion of diabetes for five years. Whilst under observation the percentage of sugar varied from 1·4 to 3·2. Under diet and appropriate treatment at Karlsbad the sugar disappeared. Sugar was absent at the time of the operation to return a week later after an indiscretion in diet, the percentage being 3·5. A fortnight later it was still present. Convalescence was complete. Giles has recorded the radical cure of umbilical hernia and the removal of a fibroid from the uterus of a woman with sugar in her urine. The sugar was quite transitory and may have been due to apprehension of the operation. It therefore will not be included in the statistics. Kleinwächter has pointed out in a recent paper that omitting Giles's case there are only nine instances of uterine fibroids complicated with glycosuria on record. With Landau's two unpublished cases the number rises to 11, of which four have been subjected to operation successfully. Reynier has recorded a "vaginal and abdominal" hysterectomy in which gaping of the wound occurred on the thirteenth day. Secondary suture, however, was effectual. The nature of the disease is not mentioned. Of five ovariotomies three were successful. One of the fatal cases was a patient with a bilateral ovarian dermoid with numerous adhesions which rendered the operation very difficult. The other fatal case was that of a patient with a malignant tumour of the ovary in which the wound on the fourteenth day gave way, allowing the intestines to protrude. Re-suture was not successful, death occurring on the fortieth day. Reference has already been made to two ovariotomies (and to a pyosalpinx) in which diabetic symptoms previously present vanished. This may have

TABLE V.—OPERATIONS ON THE MALE GENERATIVE ORGANS.

No.	Age.	Reference.	Disease.	Operation.	Result.	General treatment.	Remarks.
1	50 years.	Verneuil: Bulletin de l'Académie de Médecine, 1881	Epithelioma of the penis.	Amputation by galvano-cautery.	Fever next day (? malaria). Recovery.	For preceding 15 days. Sugar reduced to 0.	Slight diabetes. Total amount of sugar per diem 12 grammes. Reappeared the day after the operation.
2	62 years.	Smith and Durham (Jacobson's case).	Epithelioma of the penis; enlarged glands.	Amputation of the penis. A large operation, all the corpora cavernosa being removed.	Wound sloughed. The left foot became gangrenous. Death on the tenth day.	Diet and codeia slightly diminished the sugar.	Diabetes for 10 years. The patient was never quite himself after the operation. Albumin also was present.
3 a.	70 years.	Claisse and Durrieux.	Epithelioma of the prepuce (of the size of a two-franc piece); phimosis.	Removal by a free circumcision.	Recovery.	—	Glycosuria for 10 years.
3 b.	—	(The same patient at 68 years of age.)	Phosphatic calculus.	Lithotrity.	"	—	—
4	65 years.	Becker.	Epithelioma of the bladder; cystitis; stricture of urethra.	Suprapubic cystotomy.	Coma; death.	—	No sugar at the time of the operation; next day 7 per cent. Arterio-sclerosis. Post-mortem examination, ? coma precipitated by anæsthetic.
5	60 years.	St. Bartholomew's Hospital Surgical Register, vol. v., 1890, No. 1066.	Incontinence of urine; false passage.	Catheterisation under chloroform.	"	—	Specific gravity of the urine 1035; much sugar. Post-mortem examination, false passage; membranous urethra; ? coma precipitated by anæsthetic.
6	20 years.	Fort.	Stricture of the urethra.	Electrolysis October, 1882.	Recovery.	—	The same day polyuria appeared. On the fourth day the amount was eight litres. In spite of treatment about one kilogramme (?!) of sugar was excreted daily. Died April, 1883. ? Diabetes induced by anæsthetic (chloroform).

been due to the relief of pressure, but Beyea has brought forward the suggestion that the sugar may have been caused by the absorption of material from the cyst and decomposition with excretion of sugar. In Table IV will be found details of six plastic operations for ruptured perineum or procidentia, the operation varying from a mere perineorrhaphy to more extensive work on the vaginal walls and abdominal hysteropexy. All recovered; medical treatment and diet were prominent features in most of them. (Dr. Baldy of Philadelphia has furnished with great kindness the notes of two unpublished cases.) Of two curettings one, in a young woman, was fatal, coma closing the scene on the third day. The other was for fungus endometritis. The cervix was sutured at the same time for an old laceration and some warts were removed from the vulva. Healing, though delayed, was complete. At St. Bartholomew's Hospital Dr. Champneys removed an epithelioma from the vulva of a diabetic whose urine contained 4·5 per cent. of sugar. At a subsequent operation enlarged inguinal glands were ablated, but the wound suppurated slightly on account of the removal of the dressings by the patient. 24 operations accordingly were performed on 23 patients with five deaths, the percentage of patients recovering being 76·25; of successful operations 79·16. The plastic operations were particularly successful. (*Vide* Table IV.)

Operations on the Male Generative Organs.

If septic cases and those of balano-posthitis be omitted

TABLE VI.—ABDOMINAL OPERATIONS OTHER THAN ON THE GENERATIVE ORGANS.

No.	Sex and age.	Reference.	Disease.	Operation.	Result.	General treatment.	Remarks.
1	Female; 58 years.	Barker.	Malignant tumour of the transverse colon.	Excision of the growth (four and a half inches of gut removed).	The wound did not run a quite aseptic course. Later a small slough formed in the mesocolon with temporary fæcal fistula. Recovery.	Adopted. Codeine phosphate one grain subcutaneously. Diet. Bismuth carbonate as an intestinal antiseptic.	On the fourth day after the operation there was 6·6 per cent. sugar and on the ninth day 2 per cent. It was later reduced to a much less amount.
2	—	Barker.	Carcinoma recti. Complete obstruction.	Colotomy.	No repair of wound; death.	—	—
3	—	Naunyn, p. 452. (? by letter.)	Carcinoma of the stomach.	Gastro-enterostomy.	Death next day, not from coma.	Diet.	0·3 per cent. of sugar.
4	Male; 50 years.	Fisk.	Acute appendicitis with symptoms of perforation on the second day.	On the second day the abscess was opened and the appendix was excised.	The wound healed slowly by granulation. Recovery.	—	Diabetes was known to have existed for several years. The abdomen was distended, tympanitic, and rigid. A lump in the iliac fossa.
5	Female; 60 years.	Noble.	Ventral hernia.	Radical cure.	Recovery.	Codeine and strychnine.	18 months after the operation sugar was absent, general treatment being still continued. It was also absent three years later.
6	Male.	Barker.	Umbilical hernia.	"	Repair bad but eventually recovery.	—	Sugar previously absent reappeared on the day after the operation.
7	—	Reynier.	"	"	Slight disunion of the wound. Recovery.	—	Diabète gras.
8	Male; 17 years.	Fisk (unpublished case), by letter, 1901.	Irreducible pro-peritoneal hernia (right).	" (Bassini.)	Recovery perfect.	—	The sugar varied from 1·5 to 2·5 per cent.
9	—	Reynier.	Femoral hernia.	Herniotomy.	Recovery.	—	"Diabète athéromateux."
10	Female; 56 years.	Railton and Southam.	Femoral hernia, strangulated.	Herniotomy under cocaine.	36 hours later coma. Death. (The coma was apparently induced by the shock of the strangulation.)	—	Under treatment for diabetes for the preceding two years. At the time of the operation there was an acetone smell about the breath and pervading the room. Strong ferric chloride reaction.
11	Male; middle-aged.	Ashurst.	Hernia, strangulated.	Herniotomy. The stricture divided.	The bowel at the time of the operation was gangrenous. The gangrene spread to the wound. Death.	—	Diabetes for a long time.
12	—	Reynier.	Hernia of the bladder.	Radical cure.	Recovery.	—	Intermittent diabetes for years.
13	Male; 35 years.	Churton.	Pancreatic cyst with history of gall-stone colic.	Laparotomy and counter incisions Dec. 7th, 1892.	By July, 1893, the wound became a sinus. On Sept. 7th, 1893, the patient was re-admitted (he had been having insufficient food). Purpura on the legs and acetone in the urine. Much discharge from the wound. He went down hill and died on Jan. 8th, 1894. Post-mortem examination showed atrophied pancreas, rupture of the ureter, and free retro-peritoneal suppuration.		In spite of pancreatic diabetes he got over the immediate effects of the operation; but probably from the effects of bad diet, &c., sepsis gained the upper hand.
14	Male; 45 years.	Bull.	Pancreatic cyst; 10 months' history.	Laparotomy July 19th, 1886; incised July 26th; 118 ounces evacuated.	Diet not restricted until the end of September. Codeine then administered. Much improvement; gained 12½ pounds after the operation. The wound became a mere sinus. Died suddenly at the end of November, 1886.		Urine: from 100 to 140 ounces 5 per cent. of sugar.
15	Male; 40 years.	Pagenstecher.	Pancreatic cyst.	Incision and drainage Dec. 12th, 1882.	Became a mere sinus. Patient died one and a half years later from diabetes.		At the time of the operation 4·5 per cent. sugar was present in the urine.

six operations remain which were performed in the presence of glycosuria. Three operations for epithelioma have been performed, with one death. The fatal case is mentioned by Smith and Durham. The operation was an extensive one—amputation of the whole penis. Sloughing of the wound and gangrene of the left foot brought about a fatal result on the tenth day. The other two operations were slighter, one (Claisse and Durrieux) being a mere circumcision for epithelioma of the prepuce following balano-posthitis. The patient had previously undergone lithotrity for a phosphatic calculus and had been diabetic for eight years. Becker in his paper on Anæsthesia in Diabetes refers to a fatal suprapubic cystotomy for cystitis complicating epithelioma of the bladder and stricture. Sugar was absent the day before the operation, but the day after it amounted to 7 per cent. The patient succumbed on the third day from coma. After a catheterisation under chloroform at St. Bartholomew's Hospital, a man, aged 60 years, died on the third day. The urine contained much sugar. Post mortem a false passage was found in the membranous urethra. In the last two cases the supervention of coma seems to have been due to the anæsthetic. Fort has recorded an interesting case in which, after electrolysis of a stricture in a young man, polyuria appeared the same day, the amount on the fourth day being eight litres, and in which there was over a kilogramme of sugar. In six months the patient died from diabetes. There had been no sign or symptom of diabetes previously to the operation. This case, taken in conjunction with some others that have been published, raises the question of the possibility of the induction of diabetes through an operation. (Compare the case in which ligature of the femoral artery was performed for aneurysm of the popliteal.) But it must always be remembered that diabetes may be latent. Thus of six operations on five subjects three died, giving an operation mortality of 50 per cent., but no special precautions had been taken in two against coma. (*Vide* Table V.)

Abdominal Operations other than on the Generative Organs or Bladder.

Two herniotomies for strangulated hernia have been published; both ended fatally. One patient, a woman, aged 56 years, was known to have been suffering from diabetes for two years. At the time of the operation there was an odour of apples about the breath which pervaded the room and the ferric chloride reaction was present. The herniotomy was done under cocaine; the next day the patient seemed better but coma followed and closed the scene in 36 hours after the operation. The other patient was a man in whom strangulation had existed for four or five days. At the time of the operation the gut was found to be gangrenous; it was therefore left in the wound, to which gangrene spread, the patient dying from sepsis. Barker has recently recorded three abdominal operations on diabetics. In one case four and a half inches of the transverse colon were removed for a malignant growth. The wound did not run a quite aseptic course and later a piece of the mesocolon sloughed, leaving a temporary fæcal fistula. Recovery, however, was complete eventually. General treatment was adopted but no sodium bicarbonate was administered. In another colotomy for complete obstruction was performed. No repair took place and coma ensued. The cause of the obstruction was carcinoma recti. The third patient underwent the operation for the radical cure of an umbilical hernia. Sugar, which had not been observed previously, appeared the next day. Repair was bad but healing eventually took place. A gastro-jejunostomy for cancer of the stomach proved fatal in two days, though not from diabetic complications; 0·3 per cent. of sugar was present. Fisk has recorded an appendicectomy in a man, aged 50 years, on the second day of an acute attack. The wound healed slowly by granulation. The patient had been diabetic for years (compare Table I., cases of temporary glycosuria accompanying appendicitis). Three pancreatic cysts in diabetics have been drained; in each case the patient survived the immediate effects of the operation but died some months after. In Churton's case the cyst was drained in December, 1892; the wound became a mere sinus by July, 1893, but under improper and poor diet out of hospital the health of the patient became worse and he was readmitted in September with a freely discharging wound. He went gradually down hill and died in January, 1894, 13 months after the original operation. Post mortem there was free retroperitoneal suppuration and the ureter was found to be ruptured. In Pagenstecher's case (mentioned by Körte) a man, aged 40 years, had a pancreatic cyst of the size of a child's head. The urine contained 4·5 per cent. of sugar. This was drained on Dec. 12th, 1888. On his discharge from hospital the wound was a mere sinus. Death from diabetes occurred one and a half years after the operation. In Bull's case an emaciated man, aged 45 years, in whose urine 4·5 per cent. of sugar was present, underwent laparotomy on July 10th, 1886, at which the cyst was fixed. It was opened and drained on the 26th, 118 ounces of fluid being evacuated. By Sept. 12th the patient had gained 12½ pounds in weight. Up to this date there had been no special dietetic or medical treatment, the percentage of sugar being 5. On the 18th he was dieted and was put on codeine. The percentage of sugar fell to 1·25. On Nov. 13th he left the hospital with a sinus two and a half inches deep. Two weeks later he died suddenly. There was no necropsy. He had discontinued diet and medicine on leaving the hospital. The number of pancreatic cysts recorded with sugar in the urine is quite small. These three cases show that even pancreatic diabetes is no bar to operation, though the final prognosis is less good if general precautions be neglected. Noble of Philadelphia has published an account of a radical cure of a ventral hernia in a woman, aged 60 years, the hernia being the sequela of the removal of the appendages some years previously. The amount of sugar in her urine diminished under the influence of codeine and strychnine. Recovery was complete. 18 months later her urine was free from sugar. Three years later she was still well though continuing general treatment. In a radical cure of an umbilical hernia recorded by Reynier slight disunion of the wound occurred but recovery followed. Two other radical cures by the same observer were successful. Dr. Fisk has kindly furnished the notes of a radical cure by Bassini's method for a pro-peritoneal hernia in a youth, aged 17 years. Recovery was perfect. The percentage of sugar varied from 1·5 to 2·5. This is the youngest diabetic patient upon whom an operation seems to have been performed. Thus, of 15 operations on 15 patients 11 recovered, which gives a percentage of 73·3. As, however, three cases were moribund or nearly so at the time of the operation the percentage of recoveries is unduly low. It must be remembered that several laparotomies are to be found in the section on operations on the female generative organs. There are also some cases in Class 1 in which, though apparently diabetic, yet after operation sugar permanently vanished. (*Vide* Table VI.)

(To be concluded.)

CASE OF POISONING BY MORPHIA INJECTION TREATED BY INFUSION OF SALT SOLUTION.

BY EDWARD F. WILLOUGHBY, M.D. LOND.

AT about 1 P.M. on Sept. 15th, 1901, I was called to see a woman who had, as I learnt, taken eight grains of sulphate of morphia in three hypodermic injections less than half an hour before. She had not acquired any tolerance, having had it administered on one occasion only, when it caused such violent sickness that she refused to have it repeated, preferring to endure the pain from which she was then suffering after an abdominal operation. I was soon joined by the locumtenent of her ordinary medical attendant who was out of town, but he, being a young man, left the conduct of the case to me. On our arrival the patient was still semi-conscious, but within 10 minutes she sank into a state of profound narcosis from which it was impossible to rouse her. During the first hour we administered three injections of one-fiftieth of a grain of sulphate of atropine and one-tenth of a grain of nitrate of strychnine without any perceptible effect, except that the strychnine excited spasms from every 10 to 20 minutes. The rigidity of the muscles, which lasted for from three to five minutes each time, greatly interfered with the artificial respiration which soon became necessary. We gave also at least a dozen injections of 20 minims of ether, with what benefit we could not say. The partner of the patient's own medical attendant joined us later, bringing a galvanic battery. Whenever we desisted

from our efforts at artificial respiration the natural respiration ceased and it was four hours before we were able to discontinue it. Though by this time natural respiration was re-established and the spasms had passed off the patient's pupils were contracted to pin-points, her complexion was dusky, and the narcosis was so profound that the application of the strongest possible interrupted current to the soles of both feet did not excite the slightest movement even of the toes. She had not passed any urine and I drew off only about an ounce with the catheter. I then suggested the subcutaneous injection of the physiological salt solution as recommended first by Sahli of Berne. The partner was somewhat doubtful and averse to the procedure and was absent for an hour in quest of the apparatus. But when about a litre had been infused by gravitation into the subcutaneous tissue of the flank the effect was almost immediate and was striking. Within 20 minutes the duskiness and coldness of the skin had given place to a natural colour and warmth and the patient had so far recovered sensibility and consciousness as to struggle violently against the mechanical and electrical stimulation employed to keep her awake. She could answer questions intelligibly and she recognised the other medical men but she knew me to be a stranger and continually begged to be left alone.

I felt certain that the startling improvement following so soon after the subcutaneous infusion of 30 ounces of salt solution was owing to the impulse given by the increased intra-vascular tension to the gastric and intestinal exudation and consequently to the elimination of the morphia, which ordinarily is excreted mainly in the bowel and little, if at all, by the kidneys; but that a certain proportion of the drug being probably re-absorbed the complete removal of so large a quantity would be long and tedious. I knew the action of potassium permanganate in the breaking up of morphia, even, as Dr. A. P. Luff had shown, in the presence of oxidisable matter as vomit, and I should have had instant recourse to this antidote had the poison been swallowed. But it occurred to me that since the drug was now passing out into the alimentary canal it might be destroyed as fast as it appeared by contact with the permanganate and reabsorption might be prevented. I therefore mixed about a quart of a dilute solution, instructing the nurse to give the patient a wineglassful, alternately with her nourishment, every quarter of an hour or 20 minutes through the night until the contraction of the pupils had passed off. I did not see the patient again but was informed by her medical attendant that by 9 A.M. on the next day her condition was quite normal but for the sense of fatigue and soreness consequent on a score of hypodermic punctures and four hours of sustained artificial respiration.

In looking back on such a case one naturally asks oneself to which, if any, of the means employed the success was really due, which were superfluous, and whether any were useless or possibly even hurtful. We used hypodermic injections of atropine, strychnine, and ether, *secundum artem*, in deference to usage and because nothing could be taken per os, but I cannot honestly say that they were of any benefit except the ether which could not but act as a general stimulant. The respiration ceased again and again while the action of the atropine was visibly antagonising that of morphia on the pupils and the tonic contractions of the muscles caused by the strychnine made the work of artificial respiration extremely laborious. This alone kept the patient in life but that was all, for when at the end of four or five hours from the taking of the poison natural respiration seemed to be re-established she was still absolutely insensitive to pain or to electric shocks and deglutition was still impossible. The effect, however, of the saline subcutaneous infusion was such as to admit of no doubt and it was startling in the rapidity of its manifestation. So long as no fluids could be swallowed no urine was secreted and there was no reason why the morphia should be eliminated by the bowel until the intra-vascular pressure was raised by the infusion. Then, even, a long and anxious time, not wholly free from danger, would have ensued during which much of the drug would have been re-absorbed and circulated again through the brain but for its destruction by the permanganate *pari passu* with its first elimination. In short, I look on the injections as useless, on the artificial respiration as having served to keep the patient alive until means could be taken for washing out the poison, the saline infusion as having effected this, and the permanganate as having greatly aided the result by preventing re-absorption.

Green Lanes, N.

AN INTERESTING PHENOMENON OCCURRING IN TACHYCARDIA.

BY HERBERT D. EVERINGTON, M.B., L.R.C.P. LOND., M.R.C.S. ENG.,

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A MARRIED woman, aged 36 years, was admitted into the Royal Hospital for Children and Women Waterloo-road on August 3rd, 1900, suffering from articular pains and swellings which she had had for some days previously. On admission she looked decidedly ill. The face was puffy and congested, the tongue was dry and furred down the centre, and the pulse was of full volume, high tension, and "bounding," the beats numbering 128 to the minute, no irregularity being noted. The temperature was 103° F. Nothing abnormal was found in the chest or the abdomen. The left knee and wrist were acutely tender and were much swollen. The patient was placed on a diet of milk and was given 10 grains each of the bicarbonate and salicylate of soda with half a drachm of sal volatile every four hours. Her condition remained much the same for some days and on the 7th the alkaline salicylate mixture was replaced by doses of 10 grains of salicylic acid given in cachets every six hours. The diet was made more generous. Up to the 9th no undue acceleration of the pulse was noted, the range varying more or less with the temperature from 92 to 112 per minute. On the night of the 9th, however, this moderate pulse-rate had given place to one of extreme rapidity. The frequency could no longer be counted at the wrist, the pulse being too rapid and "running." By means of the stethoscope, however, over the heart the beats could be distinguished and were found to number 224 to the minute. No complaint was made with reference to the heart though the patient complained of the pain in the limbs. The salicylic acid was immediately discontinued and five minims of tincture of digitalis with 30 minims of sal volatile were given and repeated every four hours. During the early hours of the morning the pulse maintained an extremely rapid rate and was numbering 210 when the morning round was made. A prescription was ordered containing 10 minims of tincture of digitalis, five minims of tincture of nux vomica, half a drachm of aromatic spirit of ammonia, 10 minims of spirit of chloroform, and distilled water to make up one ounce. This was given every four hours. On the afternoon of the 10th the patient was examined by Dr. Guthrie Rankin who found no evidence of organic disease of the heart and no dilatation whatever. The heart beats were counted at about 220 per minute. During his examination Dr. Rankin ordered the patient to take deep breaths and after several of these inspirations it was found that the heart beats had dropped to 124 in the minute, or roughly a fall of 100 beats. A mixture of 15 grains each of the bromide and salicylate of sodium was given every four hours, alternating with the digitalis mixture above mentioned. The pulse was not noticed to be unduly accelerated for several days but the temperature remained high, averaging 100°. The bromide was discontinued on the 18th. The patient gradually went down hill and the tongue became extremely dry and foul, sordes developing on the teeth and lips. On the 22nd she presented a decidedly "typhoid" appearance. Soon after midnight on the 25th the pulse had again risen and it numbered 192 per minute. On taking some deep breaths the rapidity fell immediately to 108. On the night of Sept. 2nd tachycardia was again present—202 beats per minute—but this time the rapidity could not be reduced by deep inspirations as heretofore, nor did they have such an effect subsequently. The patient lost ground continually. On the 5th the highest rate of pulse was noted, the beats numbering no less than 234 per minute at 2.25 P.M., when the temperature was 103°. From being in an extremely critical condition the patient began to show signs of improvement and by the 24th she was out of immediate danger. No further tachycardia was recorded. The knee and wrist improved but never returned to their natural state. The patient's general health became very much better and she finally left the hospital in December.

There are one or two extremely interesting points in connexion with this case. Leaving on one side the question of diagnosis of the articular trouble which presented much difficulty and turning to the condition of tachycardia the

case adds further evidence to the already noted fact that alteration of intra-thoracic pressure may influence attacks of heart-hurry. In the above patient the mere mechanical taking of deep inspirations was sufficient to reduce the frequency of the heart-beats by nearly 100 per minute. How this does so is not very evident, but that the dynamical alteration has such an effect is a recognised fact. Sir William Broadbent in his treatise on "Heart Disease" states that "to arrest an attack of palpitation it is sometimes only necessary to take a dozen deliberate breaths." Again, in Dr. Thomas L. Stedman's "Twentieth Century Practice of Medicine," vol. iv., p. 413, Rosenfeld is quoted as describing how a patient made the accidental discovery that after a deep breath the attack of palpitation ceased. Rosenfeld tried increased intra-thoracic pressure as treatment for this condition and with much success. Dr. T. Clifford Allbutt in his "System of Medicine" quotes a case in which, by holding the breath in inspiration and bending down and thereby pressing the abdomen on the thighs, the attack of palpitation was arrested. The high rate of frequency of the heart-beats is an interesting feature in the case described above which, though not as great as some that are recorded, is yet sufficiently remarkable to deserve attention.

Sanderstead, Surrey.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF ECLAMPSIA OCCURRING IN TWIN PREGNANCY.

BY WILLIAM B. MASON, M.R.C.S. ENG., L.R.C.P. LOND.

THE following case is one which is chiefly remarkable for the number of the fits and for its resulting in complete recovery. The patient was 26 years of age and was married on April 27th, 1901. Menstruation commenced when she was 19 years of age; it was always painful but regular. She never had any fits. When a child she contracted scarlet fever but had no hæmaturia. She suffered from anæmia. In June, 1899, she had an attack of hæmatemesis. There had been amenorrhœa since marriage. On two occasions—namely, on Oct. 30th and Dec. 2nd, 1901—she sent messages to the effect that she was feeling pain in the abdomen. On examination it was found that there was slight general tenderness over the abdomen; it was relieved each time by fomentations. There was no discharge from the vulva and the temperature was not raised. Labour commenced on Feb. 19th, 1902, and was rather long but quite normal up to the protrusion of the head of the first child. When the perineum was stretched to its utmost the patient's legs were noticed to stiffen and a regular eclamptic fit then followed. First there was a tonic stage when her head was turned to the right with the eyes wide open and staring; then her whole body stiffened, producing opisthotonos or pleurosthotonos, according to her position at the time. This stage lasted about three seconds and was then followed by a clonic spasm of all the muscles of the body with production of snoring respiration. After this first fit she regained consciousness in about half an hour and asked if "it would soon be over." As she did not know that there was a second child I told her that it would not be very long now. During the birth of the second child exactly the same thing happened and this fit lasted about the same time as the first. Both children were very small and were delivered without any difficulty. As soon as the third stage was completed I gave a hypodermic injection of one-hundredth of a grain of hydrochlorate of cornutin followed by an injection of one-hundredth of a grain of hydrobromate of hyoscine. As the patient was still having fits in very rapid succession I repeated the hyoscine in one hour's time. After this she slept for four hours and had no fits but when she awoke the fits recommenced. I ordered the following mixture to be taken every two hours: 15 grains of bromide of potassium, one drachm of tincture of hyoscyamus, and syrup of ginger and chloroform water to make up half an ounce. I also directed half a drachm of chloral hydrate to be dissolved in an ounce of water and injected per rectum. Under this treatment the fits became less severe and less frequent, but they nevertheless continued for five days, during which time she had 62 in all and as many as 20 on the third day. During the whole of the five days urine and fæces were passed unconsciously and as soon as some urine could be collected it was found to become quite solid when heated to the boiling point. The patient's temperature was normal throughout. After the fifth day convalescence was uneventful. One of the infants died from inanition on the fourteenth day. The mother got up on the twentieth day and is now quite well except that her memory is slightly deficient. I saw the other infant as recently as April 21st and I do not think that it will survive long.

Southsea.

A CASE OF INTRACTABLE NASAL HÆMORRHAGE.

BY G. HUNTER MACKENZIE, M.D. EDIN.,
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ON Dec. 29th, 1901, I was asked by Dr. James Mill of Leith to see a case of nasal hæmorrhage of about one week's duration which had proved refractory to the usual methods of treatment. The patient was a man, 49 years of age, rather alcoholic and with slight albuminuria. On examination of the right nostril the seat of the recent bleeding was readily located, as is usually the case, on the anterior third of the septum, about one centimetre above the nasal floor. Under cocaine the hæmorrhagic area was freely galvanocauterised and a pledget of cotton-wool saturated with a solution of adrenalin chloride was inserted. This treatment proved ineffectual, for on the following day I was again asked to see him on account of frequent recurrence of the bleeding. The cauterisation and applications of adrenalin were repeated over a wider area of the septum and during this process the patient became unconscious and had a convulsive attack. He was assisted to bed, when the hæmorrhage again commenced in a more intense degree than ever. He continued to bleed very freely for the next 24 hours, with the result that his condition became so extremely serious that we had him removed to the Edinburgh Eye, Ear, and Throat Infirmary. Further local treatment having proved unsuccessful, on the morning of Jan. 1st, 1902, chloroform was administered by my colleague, Mr. John Cumming, and with a nasal spoon and curette I stripped off the whole of the mucous membrane of the septum. Very profuse hæmorrhage accompanied this procedure but it soon ceased spontaneously. On the night of the 2nd (34 hours after the curetting) the patient had a moderate bleeding and on the morning of the 4th there was a very slight recurrence. I was fortunately present on the latter occasion and on examining the patient I found that the blood was oozing very slightly from the roof of the nostril in close contiguity to the septum, an area from which the mucous membrane had not been removed. As the bleeding was extremely slight I did not consider further treatment to be necessary. From that date to this (May) there has been no further hæmorrhage and the patient has quite recovered his former good health.

As, so far as I know, this is the first instance in which severe nasal hæmorrhage has been treated by curetting the mucous membrane I have thought it fit to put it on record.

Edinburgh.

A CASE OF INFECTIVE PERIOSTITIS.

BY WALTER H. HAW, M.R.C.S. ENG., L.S.A.

IN THE LANCET of March 1st, 1902, p. 589, I notice a clinical note upon a case of infective periostitis by Mr. John R. Griffith. As I have lately attended a patient whose symptoms were in many respects similar to those described in that note a brief record of the case may be of some interest.

On Feb. 25th, 1902, I was called to see a little girl, aged 11 years, with the following history. On the 23rd she was apparently well until towards evening, when she complained of chilliness and pain in the left hip but she was able to go to church in the evening. Next day the pain was worse and when I saw her on the 25th she lay in bed on her back evidently in great pain and with an anxious look on her

face. Her temperature was 104° F. and her pulse-rate was 120; her tongue was furred but moist. She complained of pain in the region of the left hip and on examination I found that there were swelling and resistance in the area lying between the crest of the ilium and the trochanter and also excessive tenderness to touch and movement. The cutaneous veins coursing over the area of swelling were enlarged. In my opinion the case was one of suppuration in connexion with the iliac bone but I could find no superficial focus from which it could have arisen. There was, however, the mark of a recently healed injury on the left foot but there was no pus. On the previous night she was said to have been slightly delirious and she then stated that her leg was sore because one of the children had been lying on her. Further, it was remembered that on the 20th she had fallen from a tree but I could not directly connect the pain in the hip with the fall. On the 27th her condition suggested cerebro-spinal meningitis, there being pain and acute tenderness over the body generally, rigidity of the posterior muscles of the neck, and delirium and unintelligible speech, while the urine and fæces were passed in bed. On March 2nd these symptoms had disappeared but it was reported that the abscess had burst and on inquiry I found that this idea was due to a purulent light yellow discharge from the vagina. On the 4th it was further reported that the bruise due to the fall was at last coming out; this turned out to be a dusky red discolouration over the seat of pain and resistance with a similar flush upon the left olecranon process. On the left front of the abdomen were some red streaks of lymphatics radiating from a soft, subcutaneous, rose-coloured tumefaction of the size of a sixpence. No fluctuation could be obtained over the seat of trouble but in view of the infection of the blood I cut down upon the ilium and evacuated about two ounces of pus which did not flow until the periosteum was divided. A drainage-tube was inserted and injections of potassium permanganate were employed but no improvement whatever resulted, the case going from bad to worse. On the 6th the left cheek swelled but no pus was detected in it and on the back of the left heel appeared a red patch with purulent foci dotted over the surface. Death occurred in the early morning of the 7th.

The points of interest to me in this case were: (1) the history of a fall; (2) the presence of a yellow vaginal discharge; and (3) the temporary acute involvement of the cerebro-spinal system, due probably to the formation of a cerebro-spinal poison at the seat of suppuration. How far the vaginal discharge was to be connected with the statement made by the patient during slight delirium that a child had been lying on her I cannot say. I made no inquiries in this direction, for I looked upon the discharge at the time as part of the general infection of the blood.

Knysna, Cape Colony.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin:* Professor Virchow has announced that he will not be able to give any lectures during the present summer session; the anatomical and microscopical demonstrations will be given by the assistants—viz., Professor Jürgens, Professor Israel, and Dr. Oestreich.—*Cracow:* Dr. Emil Godlewski has been recognised as *privat-docent* of Anatomy and Embryology.—*Ghent:* The chair vacated by the death of Professor Bouqué is to be divided into a chair of General Surgical Pathology to which Dr. van Imschoot has been appointed and a chair of Special Surgical Pathology which has been given to Dr. de Cock.—*Griefswald:* Dr. Fritz Moritz of Munich has been offered the chair of Medicine in succession to Dr. Krehl, who goes to Tübingen.—*Munich:* Dr. Friedrich Müller of Basle has been appointed to the chair of Medicine, known as the second, which has been held by Professor Joseph von Bauer.—*Naples:* Dr. Achille Capaldi has been appointed to the chair of Gynæcology.—*Philadelphia (Polyclinic):* Dr. Joseph Sailer has been appointed Professor of Diseases of the Stomach and Intestines.—*Prague (Bohemian University):* Dr. Carl Chodunsky has been promoted to the Ordinary Professorship of Pharmacology and Pharmacognosis. (*German University*): Dr. Alex. Margulliés has been recognised as *docent* of Psychiatry.—*Rome:* Dr. Michelangelo Luzzato has been recognised as *privat-docent* of Medical Pathology.—*Turin:* Dr. Alfonso Cattaneo has been recognised as *privat-docent* of Ophthalmology.—*Vienna:* Dr. Rudolf Matzenauer has been recognised as *privat-docent* of Dermatology.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quampluriumas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

ROYAL HOSPITAL FOR CHILDREN AND WOMEN, WATERLOO-ROAD.

A CASE OF TRANSPERITONEAL NEPHRECTOMY FOR SMALL ROUND-CELLED SARCOMA IN A BOY, AGED FOUR YEARS.[1]

(Under the care of Dr. C. O. HAWTHORNE and Mr. H. J. CURTIS.)

THERE can be no doubt that early nephrectomy is the only treatment for sarcoma of the kidney in infants, even though the mortality from the operation is over 50 per cent. and though statistics show that of the cases which recover 90 per cent. die from recurrence within a year.[2] In the following case it would have been of interest to have had a bacteriological examination of the pleuritic fluid, as that might have explained the occurrence of the pleurisy from which the patient died.

A boy, aged four years, was taken to the Royal Hospital for Children and Women on Oct. 7th, 1901. He was then the subject of a considerable abdominal tumour which, without much difficulty or hesitation, was recognised as a growth arising from the region of the left kidney. The enlargement of the abdomen was accompanied by undue prominence of the superficial veins and had only been recognised by the boy's mother as recently as Sept. 23rd, though it was allowed that the patient's health had not been satisfactory for a period of two months. It appears that the boy accidentally fell when running in the street on August 5th and that subsequently to this he had never seemed quite well. This fall had the fortunate consequence of securing for Dr. Hawthorne and Mr. Curtis a knowledge of the boy's condition two months before he came under their own observation, as on August 7th—that is, two days after the accident—he was admitted to St. Thomas's Hospital. Through the courtesy of Mr. P. W. G. Sargent they learnt that on that date the boy was reported to have been continually sick and fretful since his fall; that on examination he was noted to keep his legs drawn up on the abdomen; and that there was dulness on percussion with marked tenderness in the left lumbar region. In the course of the next day or two, however, the boy lost all his symptoms and he was discharged apparently well on August 10th. From this date until the mother's discovery of the abdominal swelling in the latter part of September there appear to have been no symptoms of a definite character. The boy seemed to be weak and listless, and perhaps had lost flesh but he made no complaint of pain. At no time was blood observed in the urine; there was no albuminuria either when the urine was examined at St. Thomas's Hospital or at Waterloo-road, and vomiting was limited to the two or three days immediately after the accident.

On admission the patient was a thin and delicate-looking boy, very quiet, but not complaining of pain or other discomfort, and in the course of a few hours he seemed to be quite at ease, sitting up in bed and playing with toys, apparently entirely unaffected by the presence of the tumour. The family history presented nothing of interest. On examination, the superficial veins over the left flank were seen to be enlarged but there was no œdema of the abdominal wall. A hard, irregularly-rounded swelling could be felt amost half filling the abdomen, occupying chiefly the left flank. Above the umbilicus it crossed the middle line and reached nearly to the right linea semilunaris. Below the umbilicus the tumour did not extend quite as far as the middle line. Its smooth,

[1] A paper read before the Society for the Study of Disease in Children on April 18th, 1902.

[2] J. Bland-Sutton: Tumours, second edition, p. 134.

rounded lower border dipped just below the iliac crest. No notch could be felt anywhere. The swelling did not move with respiration. Though generally of very firm consistence, in places it seemed to be soft and almost fluctuating. Its median half was resonant on percussion, the descending colon evidently lying over it. The urine was of normal colour, with a specific gravity of 1026; it gave an acid reaction and contained no albumin. The chest was normal. The temperature on admission was 96·6° F., rising three days later to normal.

Transperitoneal nephrectomy was performed four days after admission, the tumour, with the involved left kidney, being shelled out with a good deal of difficulty owing to the firm adhesions to the posterior abdominal walls (especially over the lower half of the back of the growth) and to the tail of the pancreas. There was in consequence considerable shock, but very little hæmorrhage. The ureter at its origin was completely concealed in the growth. The tumour removed weighed three pounds 15 ounces. It was firmly encapsuled and measured about six and a half inches from above down and six inches from side to side. After recovering from the immediate collapse there was persistent vomiting, feeding having in consequence to be almost entirely rectal. Otherwise, during the first week the patient seemed to be doing well, the temperature remaining normal. Five days after the operation the child began to suffer from cough. The temperature was 98·8°; the pulse was 136 and the respirations were 28 per minute. The chest was normal. The wound closed, but owing to the persistent vomiting and the onset of cough the stitches were not removed before the eleventh day. The patient unfortunately developed pleurisy with effusion on both sides and died on the fifteenth day after the operation.

The state of the urine was as follows:—On the same evening as the operation the amount of urine passed was four ounces and the same amount was passed the next day, the specific gravity being 1030; it gave an acid reaction; there was no albumin. On the second day after the operation about 14 ounces of urine were passed but all of it could not be collected. On the next four days the amounts collected were 11 ounces, six ounces, four ounces, and 13 ounces respectively. On the last of these days the specific gravity was 1028; the reaction was acid; there was no albumin or sugar. On subsequent days the following amounts were collected: five ounces, four ounces, 10 ounces, eight ounces, eight ounces, seven ounces, and eight ounces, the bowels at the same time acting freely, once or more a day.

Necropsy.—At the post-mortem examination the wound was found to have united throughout. There was no evidence of peritonitis. There were a few adhesions of the intestine to the parietal peritoneum where it had been divided in order to shell out the kidney tumour, the divided peritoneum having apparently readily united. So far as the nephrectomy was concerned the condition seemed to be perfectly satisfactory, the entire growth appearing to have been removed. There were no secondary growths or enlarged lymphatic glands. The right kidney and the liver were normal. On opening the chest a considerable quantity of fluid was found on both sides, especially on the left side. There was extensive pleurisy on both sides from the apex to the base. Section of the lungs showed them to be practically normal. No secondary growths were present in the brain or elsewhere.

Description of the tumour removed.—A median section through the growth and kidney showed the tumour, as so frequently happens, to be arising from the connective tissue within the hilum of the kidney, the cortex of which, measuring nearly seven-eighths of an inch, presented a fairly normal appearance. From the smooth, rounded appearance of the tumour, as it lay in contact with the cortex of the kidney, it seemed evident that the pelvis, though distended with growth, was still intact. A slit-like cavity in the region of one of the pyramids suggested dilatation of one of the calyces from back pressure. The upper end of the ureter was embedded in the growth. The tumour was limited by a double capsule, that of the kidney proper and of the perinephric fat, the two layers being for the most part intimately blended and of a dense white colour and very firm appearance. The cut surface of the growth was somewhat fibrous-looking, white, and homogeneous, but there were numerous areas of bright-red blood extravasation. There did not appear to be any cystic degeneration.[1] When quite fresh the growth was very soft, granular, and extremely friable, readily escaping on slight pressure after incising the capsule. *Microscopically*, the tumour was a small round-celled sarcoma, rounded masses of sarcomatous tissue containing many new vessels lying embedded in a well-formed stroma of connective-tissue fibre, which only here and there showed any tendency to develop into spindle cells. A very few tubules, probably derived from glands in the hilum, could be seen surrounded by the round-celled sarcomatous elements.

Remarks by Dr. HAWTHORNE and Mr. CURTIS.—The chief interest of the above case is to be found in its surgical aspects. Though a favourable issue cannot be recorded there is no reason to regret that operation was undertaken. In it there resided obviously the sole chance of prolonging or saving the patient's life and the fatal event arose from an unfortunate complication which, so far as can be judged, had no immediate or direct connexion with the operation.

Such a soft, vascular, rapidly-growing, round-celled sarcoma as was present in this case is the most common variety of all and composed 23 out of 43 tumours of the kidney operated on in children since 1890, according to Henry Morris. As is well known, untreated malignant renal tumours are rapidly fatal in children, death following soon after the tumour has become obvious. As regards the diagnosis, it must be remembered that in children pain is often absent, and hæmaturia is also absent in three-fourths of the cases of malignant tumours of the kidney (Tuffier).[2]

Early diagnosis and operation before invasion of the tissues around, and especially of the lymphatics, are essential for the diminution both of the operation mortality and of the liability to recurrence. Nephrectomy is useless in cases where the glands and other tissues around are infiltrated with secondary growth, and should this be found on making an exploratory laparotomy through one or other linea semilunaris the operation should be abandoned.

It is noteworthy that though the first successful nephrectomy in a child was done only in 1877 by Jessop and the operative mortality up to 1890 was as high as 60 per cent., since 1890 the mortality has been reduced two-thirds, so that in 1898 it was only 17 per cent. Albarran has collected 11 cases of children known to be free from recurrence and in good health at periods varying from one to two and a half years after the operation (Henry Morris). The advisability of surgical interference until recently was open to doubt; but two successful nephrectomies by Abbé in 1892, mentioned by Henry Morris,[4] are so interesting and go so far to settle this vexed question, that we venture to quote them in full, though a considerable number of successful cases have also been recorded before and since the date above mentioned. D. R. Abbé records in the *Annals of Surgery* of Nov. 22nd, 1895, two cases of round-celled sarcoma of the kidney, one containing a good deal of involuntary muscle, cured by nephrectomy. The patient in the first case was a girl, aged two years, who was operated upon on April 12th, 1892. The weight of the tumour was two and a quarter pounds. She was quite well at the age of five years. In the second case the patient was a girl, aged 14 months, who was operated upon on Nov. 20th, 1892. The weight of the tumour was seven and a half pounds, or just one half the weight of the child immediately after the operation. She was alive and quite well in April, 1895.

One other feature of the present case is worthy of note and it arises from the history of a fall some six or seven weeks before the detection of the tumour. Such a history, of course, raises the question whether injury can reasonably be held in any way responsible for the development of the tumour. The apparent association between traumatism and the eruption of sarcomatous growths has often been observed. In a recent paper[5] Dr. W. B. Coley, summarising his experiences, states that in his entire series of 270 cases 86, or 31·8 per cent., gave a history of injury, and that in 31, or 11·5 per cent., the tumour developed almost immediately after the injury. Whatever significance may be attributed to it the fact remains that in the present case the patient within two months after a fall, and when physical examination failed to detect anything definitely abnormal, was found to be the subject of a sarcomatous tumour arising from the left kidney and reaching nearly four pounds in weight.

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[1] Quoted by Fenger in vol. ii. of the International Text-book of Surgery, by Gould and Warren, 1900.

[2] Surgical Diseases of the Kidney and Ureter, London, 1901.

[3] Quoted in Medical Review, October, 1901, p. 597.

Medical Societies.

MEDICAL SOCIETY OF LONDON.

The Latent Period in Grave Abdominal Inflammation.—Bilharzia in its Clinical and Pathological Aspects.

A MEETING of this society was held on April 28th, Dr. W. H. ALLCHIN, the President, being in the chair.

Mr. A. H. TUBBY read a paper on the Quiescent or Latent Period in the Course of Grave Abdominal Inflammation, which is published at p. 1305 of our present issue.—Dr. T. D. SAVILL referred to the importance of the subject both in its medical and surgical aspect and confirmed the value of the pulse-temperature ratio as an indication of gravity. The temperature was often subnormal in these latent abdominal cases but if the pulse was persistently rapid, say over 100, the case called for further investigation and prompt surgical aid. His experience did not lead him to attach so much importance to the actual number of leucocytes present as an indication of suppuration as the proportion of polynuclear cells to the other white cells. Normally this was 65 per cent. and no obscure pus formation could occur without an increase in this proportion. Blood films which could be easily stained and examined should always be investigated in latent abdominal affections of the kind referred to by Mr. Tubby.—Dr. J. H. BRYANT was glad that Mr. Tubby had drawn attention to the importance of leucocyte counts in the diagnosis of obscure abdominal suppurations. He lamented the fact that so little was done in this country in the way of systematic blood examination and pointed out that at the Johns Hopkins Hospital in America systematic and thorough investigations of the condition of the blood were made in every case admitted irrespective of the diagnosis. He alluded to some cases of appendicitis under his (Dr. Bryant's) own care in which the presence of leucocytosis had been an indication for surgical interference and an absence of leucocytosis a contra-indication. The importance of the rapid pulse-rate as an indication for operation he fully endorsed. A slow pulse with a high temperature in his experience had rarely if ever been associated with any form of latent abdominal suppurative disease which had required the surgeon's aid. With regard to the presence of chest complications as an indication for operation he pointed out the great difficulty of distinguishing diaphragmatic pleurisy and basal pneumonia from primary abdominal disease on account of the occasional immobility of the diaphragm and the presence of severe abdominal pain and tenderness in the former conditions.—Mr. JONATHAN HUTCHINSON, jun., remarked that there were two classes of quiescent phases, one in which it came on before and the other in which it came on after the more marked signs of abdominal disorder. These required different interpretations and he referred to a case in illustration. The explanation of this latent phase by derangement of the nerves of the intestine did not always obtain. Rigidity of the muscles was not by any means an infallible sign of peritonitis. As to leucocytosis the results seemed to differ in the hands of different observers.—Dr. F. DE HAVILLAND HALL referred to the question of the diagnosis of diaphragmatic pleurisy and appendicitis. In some cases of appendicitis the diaphragmatic lesion was evidently, from its symptoms, of a peritoneal nature.—The PRESIDENT congratulated Mr. Tubby on having formulated so many points of importance in these cases. Short of laboratory methods the character and rate of the pulse were the most important symptoms. It had been drawn attention to by Dr. H. A. Caley some years ago.—Mr. TUBBY, in replying, suggested that the frequent involvement of the diaphragmatic peritoneum in abdominal cases was accounted for by the copious distribution of lymphatics in this region. This also explained its greater vulnerability as compared with the peritoneum, for instance, of the pelvis.

Lieutenant P. S. LELEAN, R.A.M.C., made a communication on the Bilharzia in its Clinical and Pathological Aspects, illustrated by lantern slides and microscopical preparations. After dealing with the morphological relations of this parasite, its development was fully discussed. He had demonstrated the actual hatching of an embryo in blood serum kept for 24 hours at a temperature of 30° C. This coupled with the observation of an embryo hatched in undiluted urine established two most important links in the chain of events possible in auto-infection. The hatching of bilharzia ova in serum had been previously regarded as impossible and it completely removed the main objection which had been urged against Sonsino's theory of auto-infection. The adult worm was only found in the portal system but the embryos migrated and might be found anywhere. When death took place it was usually due to pneumonia. The channel of infection was next discussed. The invasion of the parasite through the urethra during bathing was possible, but the evidence pointed to its entry per rectum, thus gaining access to the portal system which was the habitat of the adult worm. The disease was very rare in women who in tropical countries bathed as often as men. Turning to the subject of treatment Lieutenant Lelean regarded three remedies as of value. Urotropin was useful, especially for the cystitis and hæmaturia, but benzoic acid and methylene-blue seemed to have more direct effects on the parasite and produced an amelioration almost amounting in some cases to cure. His (Lieutenant Lelean's) practice was to administer every fifth day four grains of methylene-blue three times a day for one or two days and benzoic acid in the interval.—Surgeon-General A. KEOGH, A.M.S., referred to the growing importance of the subject, because a number of cases would certainly be coming home from South Africa. Such cases were liable to be mistaken for other causes of hæmaturia. A number of cases of so-called dysentery were really bilharzia.—Colonel W. L. GUBBINS, R.A.M.C., remarked that nearly all the cases which he had seen in Pretoria of bilharzia came from one district in the north-east portion of the Transvaal.—Dr. BRYANT had had three cases under his care in England this year. All had been treated with urotropin without much success, but one case treated with carbolic acid was successful.

PATHOLOGICAL SOCIETY OF LONDON.

A New Pathogenic Bacterium resembling Bacillus Pestis.—The Action of High Frequency Currents on Bacteria.—A case of Aneurysm of the Heart.—A case in which a Hat-pin remained Embedded in the Heart during Life.—An Epidemic simulating Tuberculosis in Guinea-pigs.—Specimens showing the Results of Experimental Yeast Infection.—The Inhibitory Action on Bacteria of the Fluid from Charcot Joints.—A Method of Demonstrating the Track of Bullet Wounds of the Brain.

A MEETING of this society was held in the laboratory of the Middlesex Hospital on May 6th, Mr. W. WATSON CHEYNE, the President, being in the chair.

Dr. E. KLEIN exhibited lantern slides and cultures of a bacillus which he had found in the dead bodies of rats which resembled the Bacillus of Plague (bacillus pestis) in its morphological features and in its pathogenic qualities but which differed from that organism in its cultural qualities.

Mr. ALEXANDER G. R. FOULERTON and Dr. A. M. KELLAS read a paper on the Action on Bacteria of Currents or Discharges of High Potential and Rapid Frequency. The results were given of some preliminary experiments made at the commencement of a systematic investigation into the action of such currents on various micro-organisms. The experiments, as a rule, were carried out by "spraying" the current over the surface of an emulsion in water of the bacteria tested. The current was applied by means of a platinum brush; a platinum wire was sealed through the bottom of the tube containing the emulsion, by means of which the current was either carried to earth or discharged into the air. The experiments were carried out at a temperature of from 15° to 16° C. The voltage varied from 35 to 24 and the current from 2·5 to 5 ampères. Small quantities of nitric acid and ozone were probably carried into the emulsion which became acid in reaction. But these substances probably did not materially influence the results obtained. The bacteria which had been tested were: bacillus typhosus, bacillus coli communis, bacillus dysenteriæ (Flexner), bacillus anthracis, bacillus pyocyaneus, bacillus prodigiosus, staphylococcus pyogenes aureus, and streptococcus pyogenes. In the case of bacillus anthracis (sporing culture) a certain proportion of the bacteria present were destroyed by exposure to the current for 20 minutes and the emulsion was sterilised by an exposure for 45 minutes; in the case of bacillus dysenteriæ the emulsion was sterilised by an exposure for 30 minutes; but for these two species the exact lower limit had not been determined. Emulsions containing the other bacteria were sterilised by exposures of from 10 to 20 minutes' duration.

Mr. T. J. BOKENHAM also reported observations which he had made on the Action of High Frequency Currents on the following series of micro-organisms—all suspended in watery emulsion—bacillus typhosus, bacillus anthracis (asporogene), bacillus diphtheriæ, streptococcus pyogenes, and staphylococcus aureus. The results varied considerably according to the condition of experiment. With a brush discharge obtained from an Oudin resonator sterilisation was in every case complete after an exposure of from 10 to 20 minutes. With a condenser discharge, obtained from the solenoid portion of the apparatus and so passed through the emulsion as to avoid any sparking, the result was in every case negative as regards sterilisation; indeed, the vegetative growth of the cultures seemed to be in several instances reinforced. These experiments were of a purely preliminary nature and were being continued. So much seemed to depend on the actual tension of the current employed and on the chemical reactions developed at the points of entry of the current.

Dr. ARTHUR F. VOELCKER exhibited the Heart of a man, aged 61 years, which presented an Aneurysmal Protrusion from the Apex of the Left Ventricle measuring two and a half inches by two inches. This had been diagnosed during life but the man refused to come into the hospital. He was brought in dead three days later. In the Transactions of the Pathological Society of London there were a not inconsiderable number of cases of aneurysm of the heart recorded. Of these the greater number occurred in the left side of the heart, and in the ventricles infinitely more commonly than in the auricles. Of those situated in the left ventricle and excluding those in the intra-ventricular septum there were records of 17 cases. Of these, 10 were situated at the base of the heart, six at the apex, and one about the middle of the heart. In Dr. Voelcker's own post-mortem experience he had come across three aneurysms of the heart and all had been situated at the apex, all had occurred in elderly males, and all had been secondary to myo-malacia due to thickening and narrowing of the coronary arteries. In none of the cases had rupture occurred. Aneurysms of the heart appeared to arise in one of three ways—(1) from involvement of the endocardium and myocardium from direct extension or contact from a valvulitis; (2) from gummatous deposits in the heart muscle; and (3) from a myo-malacia due to obstruction to the vascular supply of a portion of the heart muscle, such as arises from thickening and narrowing of the vessel walls or from the presence of a thrombus or embolus within it. Aneurysms arising from the first cause were generally situated at the base or in the septum, while those arising in either of the other two ways might be either basic or apical.

Dr. H. CAMPBELL THOMSON read notes of a case in which a Hat-pin was found Embedded in the Heart. The patient was a female, aged 27 years, who had previously suffered from rheumatic fever with pericarditis. She was admitted into Middlesex Hospital on August 19th, 1901, suffering from symptoms of cardiac failure and died on Sept. 27th, 1901. Post-mortem examination showed the heart to be much enlarged (weighing 16 ounces) and the pericardium was universally adherent. There was marked fibroid degeneration of the heart muscle. The portion of a hat-pin—two and a half inches long—was found to be firmly embedded in the wall of the right ventricle immediately below the pulmonary valves; the point of the pin passed through the wall of the aorta just above the valves and projected into its lumen. The point of the pin was covered with blood-clot, some of which was calcified. Although the pin only passed through about half the diameter of the aorta it had evidently at some time or other impinged on the opposite side, as evidenced by a localised injury to the wall of the aorta.

Mr. LESLIE MILBURN narrated some investigations into an Epidemic simulating Tuberculosis among the laboratory guinea-pigs. It was a nodular disease and the bacillus isolated from these cases was very similar to that obtained by Muir and Klein from the so-called pseudo-tuberculosis occurring amongst birds. Numerous other observers had described bacilli differing but slightly from that isolated by Mr. Milburn. The chief points of difference amongst these various bacilli were seen in the difference of their growth on potato and the varying degree of motility shown by the bacillus when cultivated in broth.

Mr. H. J. CURTIS showed some specimens exhibiting the results of Experimental Yeast Infections. The exhibit included a guinea-pig inoculated 18 days previously intraperitoneally with the yeast, saccharomyces neoformans, used by Sanfelice in his famous experiments in 1894, and originally isolated by him from certain fruit juices. The animal was killed by chloroform, but appeared healthy up to the time of death, when numerous cream-white tumours were seen occupying the peritoneum covering certain of the viscera, notably the kidneys and the spleen, which was also itself involved in the disease. Both sides of the diaphragm were greatly affected, being freely sprinkled over with the tiny tumours. The liver and pancreas were not so obviously invaded as in a former specimen. The lungs and pleura were similarly involved in disease. Under the microscope sections of invaded tissues and organs covered by invaded peritoneum were shown and the yeast demonstrated, as also in the case of Klein's yeast isolated from milk and inoculated into the popliteal space of a guinea-pig. The result of injection was to produce an indurated swelling locally, and infection of the superficial and deep inguinal, and the sublumbar glands. There was no involvement of the peritoneum or the abdominal viscera. In the case of both yeasts—one, saccharomyces neoformans, inoculated intra-peritoneally, the other, Klein's yeast, inoculated into the popliteal space—pure cultures were obtained from the heart's blood and these, with pure sub-cultures of the yeast and films prepared from them, were on view. Generally speaking, death resulted in about from two to four weeks' time after either mode of inoculation.

Mr. C. G. SELIGMANN described some observations made on the fluid withdrawn from two knee-joints in cases of Charcot's Joint Disease associated with Locomotor Ataxy. Both cases yielded a clear orange-yellow, highly viscid fluid with a pronounced alkaline reaction. This fluid completely inhibited the growth of bacteria of the following species: bacillus coli, bacillus typhosus, streptococcus pyogenes, staphylococcus aureus, staphylococcus albus, and staphylococcus citreus. Portions of blood-clot left soaking in the fluid in an open vessel in the laboratory did not become putrid, but fungi grew abundantly on the surface of such a mixture which had dried up. Loops of the fluid in which the above-mentioned bacteria had been placed were transferred to broth at intervals varying from two to 36 days. In every instance growth occurred. The fluid when diluted with 50 per cent. of broth ceased to produce an inhibitory effect. Chemically the fluid did not contain mucin. Microscopically motile coli and typhosus subjected to the action of the fluid were quickly immobilised and to a certain extent clumped. The blood serum of one of the patients had no such effect; that of the other was not tested.

Mr. N. BISHOP HARMAN demonstrated a Method of Ascertaining the Course of the Lesion produced by Bullet Wounds through the Brain. The case demonstrated in this manner was that of a soldier from South Africa shot in the head whilst asleep on the veldt. Measurements of the sites of the shot wounds were made and marked out upon a cadaver whose head measurements coincided with those of the patient. The brain was hardened *in situ* by injection with formalin; the wounds were then produced by trephining and drilling and the brain was removed. In the case in point the symptoms of transient paralysis of the right side, slight speech confusion, and blindness of the right halves of the visual fields, with a persistent weakness of the right arm, homonymous hemianopsia, with an additional complication of the left rim of the left field, were well accounted for by the nature and extent of the brain lesion as demonstrated in this way.

OPHTHALMOLOGICAL SOCIETY.

Exhibition of Cases and Specimens.

A CLINICAL meeting of this society was held on May 1st, Dr. DAVID LITTLE, the President, being in the chair.

Mr. H. B. GRIMSDALE showed a case of Paralysis of the Cervical Sympathetic. There was slight exophthalmos; the pupil was small and reacted very badly. Vision was bare perception of light; tension — 3. Cocaine had no action on the pupil or on the eyelid and there was a grey reflex in the pupil, possibly a detached retina.—Mr. W. T. HOLMES SPICER thought that a purulent retinitis would explain all the symptoms and he thought that the case was one of those usually called pseudo-glioma.—Mr. GRIMSDALE thought that the failure of the reaction of cocaine proved it to be a paralysis of the sympathetic.

Mr. GRIMSDALE also showed a case of Congenital Unilateral Ptosis in which movements of the eyelid were associated with suction.

Mr. W. ADAMS FROST showed a case of Multiple Ruptures of the Choroid caused by a blow from a buckle of a belt. Some of the lesions seen were more like hæmorrhages than ruptures.—Mr. W. C. ROCKLIFFE had recently seen two similar cases due to a blow with a steel hawser.—Mr. J. H. FISHER said that if some of them were hæmorrhages they were in the choroid and that therefore a rupture of some part of the choroid must have taken place in order to produce them.

Mr. FROST also showed a case of an Unusual Retinal Reflex. The fundus was unusually dark and the patient's father had retinitis pigmentosa. Mr. Frost looked upon this case as physiological.

Mr. TREACHER COLLINS showed a case presenting Unusual Opacities in the Central Part of each Cornea. The patient was a carman, aged 33 years, whose sight had been failing for two years. There had never been any real keratitis, but in the central part of each cornea were numerous white radiating lines of opacity; the periphery of the cornea was quite clear. Mr. Collins thought that these opacities were in the anterior layers of the substantia propria and were due to infiltration and degeneration with small calcareous deposits.—Dr. A. BRONNER thought that they were very superficial and might be scraped.—Mr. J. B. LAWFORD had a somewhat similar case in a woman, aged 21 years, who had had recent ulcerative keratitis. This had given rise to a central corneal opacity without injection but with great photophobia. He scraped the cornea and this was now being examined bacteriologically. He suggested that this might be done in the present case.

Mr. L. V. CARGILL showed a case of Corneal Opacity after Instrumental Delivery. The case was a difficult brow presentation in which great force had been used with the forceps. The condition was clearing and only a slight band of opacity now remained across the cornea.

Mr. C. W. THOMPSON showed a case of Obliteration of a Retinal Artery following Attacks of Temporary Amblyopia. The patient was a woman who for the last 10 years had suffered from severe headaches with temporary loss of vision. In September last she had an attack from which the vision had never properly recovered, the dulness she then noticed persisting to some extent. As a rule the vision returned after the attack had passed off. The disc was now partially atrophied.—Mr. LAWFORD thought that this represented a most important class of case seeing how common temporary loss of vision was in association with migraine and how seldom it was that ophthalmoscopic changes were seen in connexion with it. Some of them might be caused by spasm of the vessels which left the artery no less patent than it was before. He had recently had under his care a man, aged 35 years, who habitually overworked himself and who after being much underfed during Lent had developed dimness in the right eye which had persisted. For many years he had had temporary attacks of dimness, but now there was partial obliteration of one of the retinal arteries with hæmorrhages and at other places were seen old changes which apparently indicated lesser lesions of a similar nature in times gone by.—Dr. A. H. THOMPSON asked if it were a case of endarteritis obliterans, as he hardly thought that spasm would last for so long a time.—Dr. JAMES TAYLOR thought that this case was similar to cases of temporary loss of function of some portion of the brain. This sometimes led to permanent changes.—Dr. R. D. BATTEN described a somewhat similar case.—Mr. G. W. ROLL drew a parallel between this condition and Raynaud's disease.—Mr. FISHER thought the tendency of opinion was that arterial degeneration was always present. This he did not consider was the case.—Mr. THOMPSON, in reply, was inclined to the opinion that there was endarteritis present.

Dr. BRONNER showed some sections of a Conjunctival Lipoma in an infant.

Mr. ROCKLIFFE showed a case of very Rapidly Recurring Glioma of the Orbit.

Mr. W. LANG showed a child whose Orbit had been Wounded with a Pitchfork. The ophthalmoscope showed a white patch of exudation where the disc should be and he thought that the optic nerve was torn across close behind the globe.

HUNTERIAN SOCIETY.

Exhibition of Case and Specimens.

A CLINICAL meeting of this society was held on April 28th Dr. A. L. GALABIN, the President, being in the chair.

Sir HUGH BEEVOR, Bart., showed a case of Probable Complete Atelectasis of the Right Lung from Birth. With regard to the right lung the upper lobe appeared to be represented on the surface of the chest only by a small area against the clavicle. Evidence of fibroid disease, of pleural thickening, or of tumour was wanting and suggested collapse, acquired or congenital. Double coloboma of the iris and sector-shaped opacities of the lens, perhaps also the high and narrow palate, were of congenital origin. These latter deficiencies seemed to render it probable that the case was one of atelectasis from birth. The notes of the case were as follows. A woman, aged 24 years, single, had been three weeks under observation as an in-patient at Victoria Park Hospital. She had sought advice for pain in the chest and this had been alleviated by treatment for dyspepsia. The patient was small and of apparently feeble physique, yet her family history revealed no weakness in the parents or in their children. Her previous history was one of exceptional freedom from even childish ailments, an attack of diarrhœa being all that her mother could recall. A skiagram taken by Dr. Martin showed the heart entirely on the right side. There were no signs suggesting intrinsic disease of the heart but it was displaced extravagantly, the apex or maximum impulse being felt in the right axilla in the third interspace and five and a half inches from the midsternal line. In the first three interspaces pulsation might be seen and felt, it was also just palpable under the left breast. Dulness extended from the right margin of the sternum to the mid-axilla and from the third interspace downward; above this interspace was a less degree of dulness, specially less over the inner portion of the first two spaces and above the clavicle. Percussion elsewhere showed an impaired note only on the right side behind from the middle of the scapula upward and to the axilla. Cardiac auscultation revealed a faint systolic murmur best heard at the base, a common symptom in right-sided displacement. Pulmonary auscultation showed a very faint respiratory murmur above the abnormal cardiac dulness without evidence of consolidation with patent bronchi. Vocal fremitus was equal above the clavicles and was absent below the right. There was no clubbing of the fingers. The other organs were found to be normal.

Mr. JOHN ADAMS showed a specimen of Congenitally Diseased Heart displaying extreme deformity. The patient from whom the specimen described was taken was a woman, aged 23 years; she was shown at a meeting of this society on April 13th, 1898, when many of the following facts relating to her physical condition were commented on. She was of average height, the face and hands were plum-coloured, and there was clubbing of the fingers. As a rule she could do light work; dyspnœa was only present on exertion. She was always able to sleep in a recumbent position and there was no œdema till a few days before her death. She was liable to severe attacks of bronchitis, in which she would become livid and semi-comatose. Death resulted from cardiac failure consequent on a bronchitic attack. Physical examination during life showed an enormously enlarged area of cardiac dulness, six inches in transverse diameter, extending from the apex beat, which was in the fifth interspace an inch external to the nipple line. A loud systolic murmur could be heard all over the front of the chest, less clearly behind; it was most pronounced over the pulmonary area. The heart showed gross congenital defects. The organ was much broader than natural, measuring about four and a half inches from side to side; indeed, its breadth exceeded its height. It was roughly wedge-shaped instead of conical, and terminated below in a ridge which belonged as much to one ventricle as to the other. The two ventricles were nearly equal in size and in the thickness of their walls, but internally the left ventricle had a greater vertical extent than the right, which it thus exceeded in capacity. The size of the right auricle, on the contrary, exceeded that of the left at least threefold and the enormously dilated coronary sinus extended between the left auricle and the base of the left ventricle. The left appendix auriculæ was comparatively small. The foramen ovale was widely patent so as to throw the cavities of the two auricles into one; the septum was practically absent. The inter-ventricular septum was also widely incomplete at its upper part, so that two fingers could be passed from one ventricle into the other. The mitral and tricuspid valves were thickened and the orifices were narrowed, especially that of the tricuspid, which would admit two fingers. Seen from below the curtains of both valves showed some coherence; in addition to this recent

vegetations were present in both. The aorta sprang from a wide orifice above the gap in the inter-ventricular septum, springing equally from both ventricles. It had the usual three sigmoid valves. Though of more than normal size at its origin it soon diminished and the arch was much smaller than usual, while the descending aorta showed an even more marked narrowing. The carotid and subclavian trunks arose separately and irregularly from the arch and could not be identified with accuracy. The pulmonary artery arose by a small orifice from the right ventricle immediately in front of the gap in the septum. Only two sigmoid valves were present and these were much thickened and coherent, projecting up into the lumen of the vessel as a dome with the aperture at its apex which just admitted a common penholder. The cavity of the pulmonary artery itself was not much reduced in capacity and it was distributed normally to the two lungs. There was no persistent ductus arteriosus. The chief abnormalities were as follows: (1) patent foramen ovale, (2) perforate septum ventriculi, (3) pulmonary stenosis, (4) mitral stenosis, (5) tricuspid stenosis, (6) aorta arising from both ventricles, (7) branches of the aorta irregular, and (8) dilated coronary sinus.

Dr. W. MILLIGAN showed a specimen of Cerebral Tumour. The clinical interest of the case lay in the fact that the following symptoms had been absent: (1) vomiting, (2) optic neuritis, (3) slow pulse, and (4) definite localising symptoms. The course had been variable and the symptoms had yielded partially to iodide of potassium. The necropsy showed a large tumour in the posterior part of the right parietal lobe. The tumour was adherent to the membranes and its central part was necrotic. The vessels had hyaline coats from lardaceous disease. In some parts there was well-marked periarteritis.

The following took part in the discussion of the cases and specimens: Dr. T. H. ARNOLD CHAPLIN, Mr. JOHN ADAMS, Sir HUGH BEEVOR, Bart., Dr. R. HINGSTON FOX, Mr. F. R. HUMPHREYS, Dr. MILLIGAN, Mr. J. H. TARGETT, and the PRESIDENT.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.

Carcinoma of the Pylorus.—Food Preservatives.—Annual Meeting.

A MEETING of this society was held on May 2nd, Dr. A. G. BARRS, the President, being in the chair.

Mr. G. P. ANNING related a case of Carcinoma of the Pylorus in a youth, aged 19 years. The earliest symptoms were vomiting and emaciation and later marked anæmia. Eight months after the commencement of the illness the patient came under the care of Mr. Anning. The pylorus could not be palpated but the coronary glands arranged along the greater curvature could be felt. There were now frequent vomiting and severe pain. The diagnosis lay between pyloric stenosis with simple enlargement of the glands, malignant disease of the stomach, and tuberculosis.—Mr. H. LITTLEWOOD performed posterior gastro-enterostomy after which the symptoms of gastric disease disappeared. Secondary growths, however, soon appeared in the liver and the patient died. The growth was proved to be a scirrhous carcinoma.—Mr. MAYO ROBSON, Mr. H. LITTLEWOOD, Dr. J. E. EDDISON, Mr. P. J. CAMMIDGE, and the PRESIDENT took part in the discussion and Mr. ANNING replied.

Dr. A. E. PORTER read a paper on Food Preservatives, pointing out that nearly every article of food and drink which was liable to fermentative changes might be adulterated by the addition of boron compounds, salicylic acid, formic aldehyde, sulphites, or similar antiseptics. Dealing chiefly with the boron compounds he showed that this class of preservative was unlikely, in the proportion usually found in foods, to exert a prejudicial effect on the digestive ferments, with the possible exception of rennin and amylopsin in the cases of borax and boric acid respectively, though meat which had been exposed to a mixture of these antiseptics was less readily digested by gastric juice. It was further mentioned that feeding experiments on animals had usually given negative results, though Dr. H. E. Annett's observations on newly-born kittens suggested that in the very young nutrition might be impaired. No such result was, however, noted in the case of three children between the ages of two and a half and five years to whom boric acid and borax were given in quantities exceeding the relative medicinal doses. It appeared, nevertheless, that a considerable proportion of the population were liable to manifest toxic symptoms on account either of idiosyncrasy or deficient excretory powers, and to suffer from vomiting, diarrhœa, and skin eruptions of some severity, upon the administration of medicinal doses of boric acid. The largest daily doses would probably be taken in milk and the result in the case of a patient suffering from Bright's disease or gastro-enteritis therefore might be disastrous. Milk had been found to contain as much as 80 grains of boric acid per pint, probably on account of the opportunities which existed for the successive addition of the antiseptic at different stages of the milk traffic, a practice fostered by the misleading advertisements on some of the patent trade preparations. Amongst other common articles of diet by means of which boron compounds might be unknowingly introduced were mentioned cream, butter, margarine, ham, bacon, sausages, and pork pies. As there should not be the slightest necessity for such an addition in the majority of foods it was considered that the public were exposed to an unnecessary risk. Dr. Porter regretted that no effective legislation existed enabling local authorities to check a practice by which the public were liable to the indiscriminate administration of powerful drugs which should only be taken under medical supervision.

The PRESIDENT, Mr. CAMMIDGE, and Dr. EDDISON discussed the paper and Dr. PORTER replied.

The annual meeting was held at the close of the ordinary meeting. The report showed the society to be in a flourishing condition, the membership being over 350 and the average attendance nearly 60.

On a motion to admit lady practitioners to the membership of the society it was decided to obtain by circular the opinion of the members of the society before proceeding further.

The following officers were elected for the next session: President: Dr. John Irving (Huddersfield). Vice-Presidents: Mr. C. Richardson and Dr. A. Bronner (Bradford). Committee: Mr. C. J. Wright, Dr. F. W. Robinson (Huddersfield), Dr. J. Gordon Sharp, Dr. D. Sanderson Long (York), Dr. Priestley Leech (Halifax), Dr. J. Gordon Black (Harrogate), Mr. Edwin Roberts, Dr. A. H. Bampton (Ilkley), Mr. Walter Thompson, Dr. J. W. H. Brown, Mr. J. G. E. Colby (Malton), Mr. S. M. Hebblethwaite (Harewood), Mr. C. Powell White, and Mr. J. H. Woods (Batley). Treasurer: Dr. J. E. Eddison. Librarian: Dr. A. G. Barrs. Auditor: Dr. C. M. Chadwick. Honorary Secretaries: Dr. E. F. Trevelyan and Mr. R. Lawford Knaggs.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF OBSTETRICS.

The Rotunda Hospital Report for 1901.

A MEETING of this section was held on April 18th, Dr. W. J. SMYLY, the President, being in the chair.

Dr. R. D. PUREFOY, Master of the Rotunda Hospital, proposed a vote of condolence and sympathy with the family of the late Dr. Thomas More Madden, a foundation Fellow of the Academy and for many years one of its most regular attendants. His contributions to the Obstetrical Section were numerous and valuable and his pathological exhibits were among the most interesting.—Dr. GEORGE M. FOY having seconded the motion it was passed in silence.

Dr. A. V. MACAN then opened the discussion on the Rotunda Hospital Report for 1901 and congratulated Dr. Purefoy on the satisfactory nature of the report, although there were a few points in it which he thought called for observation. In Table III. he found that in 286 cases of abortion curetting was thought necessary 200 times, which was a very large proportion—two out of three cases. Curetting was attended with danger in the puerperium; he had seen the principal assistant in a South German clinic perforate the uterus at the very beginning of the operation. The application of the forceps in the extern maternity had the low proportion of 1 in 57·2 cases. Personal considerations entered so largely into the greater or less proportion of cases in which they should be used that not much could be said on the question, but he could not understand why it was necessary to have such a high proportion as one forceps delivery in 24·5 of the cases in the hospital, where the patient was throughout under observation and the forceps could, if necessary, be applied at any

moment considered advisable. In his own practice he now seldom applied the forceps and he thought that the less they were used the better. Table V. (cases of contracted pelvis) recorded the case of a woman with an antero-posterior measurement of 7·5 centimetres who, unaided, gave birth to a living child eight and a half pounds in weight. This case was remarkable, for the measurement was below that which was considered necessary for the birth of a living child. In the treatment of accidental hæmorrhage he observed that the oxytocic properties of quinine were believed in. As for himself he had never found evidences of the alkaloid possessing such properties, and he thought that five grains of it would not have much effect. The case of Cæsarean section was rather obscurely reported. "Large fibroid lifted out of pelvis; pedicle transfixed and tied." Was it the pedicle of the tumour or of the uterus? If of the latter the operation performed was that of Porro.

Dr. H. JELLETT congratulated Dr. Purefoy on his interesting report. There were just a few points left for criticism. He thought as he read it over that somebody had worked very hard at it for 24 hours in collecting a great mass of materials and then had neglected to spend a couple of hours in putting them into shape. In the case of rupture of the uterus and vagina he considered that the accident was due to the plugging, the tampon being allowed to remain after the uterine contraction had commenced. He considered that the tampon should be removed when the uterine pains were well begun. Quite recently a student of the Rotunda Hospital told him that the plug was allowed to remain in position until expelled with the child. He could not help thinking that the measurements given in the table headed "Contracted Pelvis" must be wrongly taken. Menstruation appeared to him to be a misnomer for the red discharge that occurred in newly-born female children. It was an isolated hæmorrhage, not a menstrual flow.

The PRESIDENT congratulated Dr. Purefoy on his excellent report and on the very low mortality of three out of 1600 cases. While he (the President) was Master of the Rotunda Hospital ophthalmia neonatorum was one of the troubles which he prided himself on keeping the house clear of and yet on one occasion when some ophthalmic surgeons were present in the section now sitting he heard that their hospital clinics were crowded with cases of disease in the children who came from the Rotunda Hospital.

Dr. PUREFOY said that he thanked the members of the section for the reception which they had given to his report, particularly those who had pointed out its defects. Dr. Macan had waxed eloquent on the unwisdom of curetting, but he did not agree with him at all. He had had a very large experience both in the Coombe and in the Rotunda hospitals, and he was of opinion that the sooner the accoucheur curetted and removed all septic matter from the womb the better. Forceps were used under the indications plainly pointed out. He acted according to the nature of the case and the condition of the patient. The oxytocic properties of quinine were known and advantage was taken of them to stimulate uterine action. He found that five-grain doses of the alkaloid every four or six hours were an excellent oxytocic remedy. The success of the prophylactic treatment of ophthalmia neonatorum was shown by the fact that they had only four cases among more than 1600 children. They used from one to three drops of a 2 per cent. solution of nitrate of silver. As for the objection to the term "menstruation" it was futile; for all he (Dr. Purefoy) knew the child might have menstruated at the next monthly period

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BRADFORD MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on April 15th, Mr. Philip E. Miall being in the chair.—Dr. F. W. Eurich gave a Microscopical Demonstration.—Dr. A. Bronner showed (1) cases of Extraction of Senile Cataract without Iridectomy; and (2) a patient whose Nose had been Improved in Appearance by the Subcutaneous Injection of Paraffin.—Dr. C. F. M. Althorp showed a skiagram of a Fractured Ulna with dislocation inwards of the head of the radius.—Dr. T. Jason Wood showed (1) a Meckel's Diverticulum of the Ileum removed by operation from a child who had had a discharging sinus at the umbilicus since birth; and (2) a Gangrenous Appendix Vermiformis from a case of general peritonitis.—Mr. W. H. Horrocks read a paper on the Remains of the Hymen. He pointed out that in a certain number of women the tags of the hymen, instead of being insensitive, became acutely inflamed and tender. The inflammation was perpetuated by marital intercourse and by any discharge or moisture there might be about the parts. Great pain was caused when the parts were touched and when the patient walked about smarting was set up. A state of spasm might be induced which was called by Marion Sims "vaginismus." The treatment for the condition was free stretching of the vaginal orifice together with removal of the inflamed tags of the hymen. This was usually quite successful in relieving the symptoms. A number of cases were detailed which had been cured by the treatment advocated.—Dr. Althorp read notes on a case of Hydatidiform Mole which had been expelled after dilatation and packing of the uterine cavity with gauze.—Mr. E. Protheroe Smith read notes on a case of Chronic Inversion of the Uterus. The patient was admitted to the Bradford Royal Infirmary in January, 1902, complaining of menorrhagia and metrorrhagia. She was 24 years of age and was married. She had had good health with regular menstruation till her first and only pregnancy in 1899. She was delivered of a child in November of that year. She stated that she had lost a good deal of blood after the birth of the child, but she did not know much about it as she was under chloroform at the time. Three weeks after the confinement, nothing unusual having previously occurred, the "womb came down" and she had to press it back. The same thing had happened five or six times since. Menstruation had occurred every three weeks since the confinement and had been excessive. There was no pain except on sexual intercourse. In November, 1901, she began to have frequent floodings. An anæsthetic was administered and an inversion of the uterus was discovered which it was not found possible to reduce by manipulation. On admission the patient was pale and she complained of constantly losing blood per vaginam. Examination by the vagina showed a smooth rounded tumour projecting through the os uteri which bled readily when touched but was not tender. The finger and sound could be passed through the external os to the base of the tumour but could not be passed beyond the cervix. Rectal examination showed that the body of the uterus was not in its usual position. A dimple could be felt on the top of the tumour. Galabin's modification of Aveling's repositor was applied on Jan. 28th at 1 P.M. The patient complained of pain nearly all the time that it was in position and twice during the following day she said that she felt something slip in her inside. The respositor was removed at 8 P.M. on the 27th. The tumour was found to have disappeared from the vagina. The os was dilated and a finger passed through it felt no tumour but a rough surface on the left side of the internal os. The body of the uterus was felt in the normal position. The temperature rose to 101·2° F. in the next three days and it then fell steadily. On Feb. 8th some offensive discharge was followed by a cast of the uterine cavity. She left the hospital on March 4th, the cervix uteri still being rather softer than normal.

ROCHDALE AND DISTRICT MEDICAL SOCIETY.—A meeting of this society was held on May 1st.—Mr. S. Lord showed a case of Nervous Disease. The patient, a woman, aged 37 years, had suffered from tuberculous adenitis and ulceration of the face. The present illness began in October last and was characterised by ataxia of the lower limbs with exaggerated reflexes and no loss of power. About December there had been girdle pain lasting two months and incontinence of urine lasting six weeks. There was no tender spot over the spine. The case was probably one of tuberculous pachymeningitis of the cord in the course of which there had been a localised acute attack of myelitis.—Mr. W. Atkin Thompson had seen a similar case in which the necropsy revealed caries of the body of one vertebra.—Dr. W. J. Kerr showed the Kidneys from a boy, aged one year and ten months. Both were enlarged and cystic, the left extremely so. There had been no noticeable abnormality in the quantity of urine during life. Respiratory movements had been much embarrassed by the size of the left kidney.—Dr. Kerr also read notes of a case of extensive Diabetic Gangrene in a girl, aged two and a half years. The child was not known to be ill when the gangrene appeared in the left leg in the course of the night and in the morning extended from the foot to the knee. The right foot and hip became affected the following day. The temperature rose to 107° F. just before death.—Mr. Thompson read notes of three cases: (1) Ludwig's Angina treated by free incision with good recovery; (2) Sublingual Abscess; and (3) Surgical

Emphysema as a complication of Measles and extending from the neck over the chest and abdominal walls.

GLASGOW SOUTHERN MEDICAL SOCIETY.—A meeting of this society was held on May 1st, Dr. John Stewart, the President, being in the chair.—Dr. Carstairs C. Douglas read a paper entitled "Life Assurance Examination and the Relation of the Medical Examiner to the Company." In introducing his subject Dr. Douglas made reference to the different kinds of life assurance companies at present in existence and gave a description of the method by which such important businesses were conducted. Speaking with special reference to the relationship of the medical examiner of the company to the person about to be assured he remarked that any statements made during the examination were presumably confidential and no action for damages could legitimately be brought against the medical practitioner. Dr. Douglas then referred to the want of proper remuneration of medical examiners by assurance companies, citing during his review some glaring examples of the kind. Important points in the course of the examination itself were next alluded to, the speaker dealing first in a general way with the different systems of the body. The different organs were then in turn reviewed, and lastly was discussed the importance to be attached to the presence of syphilis, glycosuria, and albuminuria.—The paper was favourably criticised by many members and on the motion of the President Dr. Douglas received the thanks of the society.

Reviews and Notices of Books.

The Motor Car, its Nature, Use, and Management. By Sir HENRY THOMPSON, Bart., F.R.C.S. Eng. London: Frederick Warne and Co. 1902. Small crown 8vo. Price 2*s.* 6*d.*

Motors and Motor Driving. By Various Writers. London: Longmans, Green, and Co. 1902. Crown 8vo, pp. 456. Price 9*s.*

CONSIDERATION of these two volumes may well be taken together and in the columns of THE LANCET the works may be considered mainly from the point of view of the medical practitioner and as dealing with an alternative to the horse-drawn vehicles of everyday practice. To take Sir Henry Thompson's little volume first. In the course of some 80 pages, he deals clearly and with much judgment with motor cars driven (1) by petrol vapour, or rather by its admixture with atmospheric air, fired either by electric spark or ignition tube; (2) by steam; and (3) by electricity. Equally important are the papers, mainly letters reproduced from the *Times*, on the duty of the motor car driver to the public and to the drivers of horses. If all motor car drivers would take to heart Sir Henry Thompson's well-chosen words on this matter there would be less unreasonable prejudice raised against their vehicles. But with his contention that drivers of horses are often more to blame for accidents than are either the horses themselves or the motor cars we are compelled to agree. Sir Henry Thompson very truly observes that the worst possible preparation for an encounter with a motor car is to begin to pull the reins tightly and to lash the horse with the whip. Yet that is what we often see done. Sir Henry Thompson's plan on meeting a horse which shows symptoms of terror is to stop his engine and to beg of the driver of the horse to allow him "to lead the animal quietly up to the motor, so that he may look at it quietly, and then perchance give him a mouthful of fresh grass from the roadside." This is unquestionably the way best calculated to allay the hostility both of the horse and of its driver. Sir Henry Thompson tells us that "he had passed his eightieth year before he gained his first experience of a motor-car drive, and trusts, though a late beginner, he may yet live a year or two longer to enjoy the same pleasure and profit which he has already derived from the practice"—a hope that will receive the cordial endorsement of all members of his profession.

The book contains clear illustrations of the working part of a Daimler engine and of the gear box, showing the working of the change speed and differential gears. An appendix contains a list of upwards of 20 routes out of London with mileage. White blank sheets for notes are inserted at the end. Altogether it is a useful little book for the would-be "motorist."

A much larger and more comprehensive work is the volume of the well-known "Badminton Library" which may be said fairly to cover the field and to be an up-to-date review of the subject. With this book before him and the catalogue of the recent exhibition, or the advertisement pages of the *Autocar* or the *Motor Car Journal*, the practitioner should have not much difficulty in deciding which particular car will best meet his requirements, though on this point we would gladly have welcomed a chapter on the question of cost. As in the case of the stable and the saddle room, the amount spent upon the motor car will largely depend upon the individual. One man will always keep one horse, or perhaps two or more horses, more than may be really necessary to do his work and will make a point of hunting one or two days a week through the season, the horses taking their turns at work and sport; another will keep only what he finds actually necessary for professional work and will to all intents and purposes use his horses for nothing else. One man will keep two horses and a dog-cart with a groom-gardener; another will keep a brougham and pair with a coachman and a helper. It is obvious that their saddle and harness-room expenses will differ widely, entirely apart from the mere question of oats and hay. So with the motor car, while one man will be content with a three and a half horse-power car with a boy to oil and to grease it, another may be satisfied with nothing less than a 12 or 16 horse-power car with an expert *mécanicien* and will be regardless of expense in the matter of 90 millimetre pneumatic tyres. On the whole it may be said that the initial outlay on a motor car or on motor cars—for many will prefer to have two and thus to run less risk of being stranded—will be larger than on a reasonably priced horse or two and a dog-cart and that the economy in annual expenditure will be problematical and will depend largely on the question of pneumatic tyres or solids. The motor car from different points of view is dealt with by experts and may—nay, should—be studied for guidance by an intending purchaser. We may particularise the chapters on the Utility of Motor Vehicles, by the Hon. John Scott Montagu; the Choice of a Motor, by Mr. Alfred C. Harmsworth; the Motor Stable and its Management, by Sir David Salomons; the Petrol Engine, by Mr. R. J. Mecredy (editor of the *Motor News*); Ignition, by Mr. Hutton; the Caprices of the Petrol Motor, by the Hon. Chas. Rolls; Tyres, by Mr. C. I. Freeston; Motor Driving, by Messrs. Edge and Jarrott; a useful chapter on Some Points of Law, by the Chairman of the Automobile Club, Mr. Roger Wallace, K.C.; and a useful Glossary in the Appendix.

Possibly the most important section to readers of THE LANCET is that dealing with the "choice of a motor"; and Mr. Harmsworth commences by saying that "of the three or four hundred types and varieties now in existence, many are of no practical use, some are extremely complicated, not a few dangerous, and many more or less faulty in construction"—a premiss to start from with which we entirely agree. Nothing could be more utterly useless to the country practitioner than a small under-powered car not capable of dealing with the hills in his neighbourhood. Those that are too complicated may be ruled out of court at once, even if the buyer resides quite near the manufactory. Amidst the "dangerous" we should certainly be inclined to class for professional, daily, and possibly rough, use, all cars depending on tube ignition, though perhaps it may be passed as a *dernier ressort* in the event of the accumulator

giving out. We would recommend the purchase of no car in which really heavy (relative) weights have to be carried and the "drive" borne by balls such as ordinarily are used in bicycle construction; and until vast improvements in their manufacture have been made we cannot—and we speak from personal experience—advise any practitioner to purchase any car running on pneumatic tyres. The annoyance and delay of a "puncture" are hardly to be regarded with equanimity. No matter how seldom it may occur, when it *does* occur it will upset the day's work and cause endless worry, confusion, and expense, for it will probably mean hurried hiring, getting on as fast and as best one can, and telegraphing to the nearest motor works or cycle agents to send out to repair the tyre. Furthermore, the use of pneumatic tyres entirely prohibits the independence which is one of the charms of the motor. To be alone on a lonely road with a collapsed tyre on a heavy car with night coming on, and perhaps in bad weather, is an experience which makes the unhappy owner think a motor car not worth having. The frequency of punctures may be judged by the fact that at the "reliability" trials at Glasgow last year it was decided that stops for punctured tyres should "not count," though the original intention was an "absolute non-stop" trial and deductions of marks made for every stop. This may be taken as an *ex cathedrâ* announcement of the Automobile Club of Great Britain and Ireland that punctures are inevitable and "do not count." We may be thought to labour this point, but it is about the most important that the medical practitioner has to consider in the purchase of a car. Perhaps the "New York," or some similar tyre may obviate the difficulty. The ordinary pneumatic tyre with the ordinary outer cover is anathema. With reference to the question of petrol, electricity, or steam, Mr. Harmsworth gives it as his opinion that "a good petrol engine is infinitely the best for all-round work," a view with which we are in accordance. The electric car can obviously only be of use in localities which have facilities for prompt re-charging, while our experience of steam cars is that, though very pleasant vehicles by daylight and while all goes well, they require too much watching and are rather too delicate for use after dark. Those that require a hot "torch" as a preliminary to starting we can hardly recommend for the everyday work of medical practice, and those that are not entirely trustworthy in a high wind must be ruled out of court for the same reason, and perhaps also on the ground of safety.

We have left ourselves but little space for the consideration of other sections, but the chapter on "Caprices" may be studied with advantage by the novice. The advice as to dress, both in Sir Henry Thompson's book and in the Badminton volume, should be carefully studied. Clothing differing from that worn for driving or riding or, in fact, for any other form of travelling is required, and it may be remarked parenthetically that the "motorist" will find his tailor's, draper's, and laundress's bills increased A motor car cannot be touched without gathering grease.

A word must be said for the illustrations The technical ones convey their meaning clearly and if the would-be "motorist" should take alarm at the possibilities of "side slip" we can assure him that incautious driving on a suitable road may produce quite as embarrassing a situation. If the illustration inculcates caution it will not be in vain. In this connexion we are bound to say a word for Wilkinson's tyres. We found a "Century Tandem" very prone to "side slip" on ordinary tyres but since being fitted with Wilkinson's this tendency seems to have disappeared even on very "greasy" roads. Even "solids" will skid if the car is permitted "to coast" down hill on a greasy surface but we have not found them to do so unless the car be permitted "to run free."

To sum up, we can strongly recommend the study of these books to any practitioner contemplating the purchase of a motor car.

A Monograph of Culicidæ or Mosquitoes. Mainly compiled from the collections received at the British Museum from various parts of the world in connexion with the investigation into the cause of malaria conducted by the Colonial Office and the Royal Society. By F. V. THEOBALD, M.A., F.E.S. London: Printed by order of the Trustees. 1901. Three vols. Vol. i., pp. xviii. + 424; vol. ii., pp. viii + 39; and vol. iii., pp. xxxvii. + five plates. Price £3 3s.

IN these days of scattered and abundant zoological publications it is of the greatest possible importance to unite into one work what is known of each particular group, a procedure which saves infinite labour for those who are to come after. Inasmuch as Mr. Theobald quotes no less than 13 fairly closely-printed pages full of references to the literature of this, comparatively speaking, minute subdivision of the diptera it is plain that his work has not been undertaken before it was needed. Further than this, the group with which he deals has at the present moment the greatest possible interest in connexion with recent discovery concerning malaria, of which certain species of gnats are the bearers and the sources of infection in human beings. The trustees of the British Museum are therefore to be congratulated on their especially well-timed liberality. The monograph could not have appeared at a more propitious moment. That it is not complete is obviously a foregone conclusion. These insects of small size and absolute ubiquity are most varied in details of organisation; the species, in fact, are quite multitudinous, and it will be long probably before the collections in the Natural History Museum and the descriptions of the same are in a state approaching completion. Indeed, since the appearance of this large monograph, recent though that appearance is, at least one paper, and that a lengthy one, has added a number of new species to those previously known.[1]

The chief aim of the monograph, which is the work of an author already well known as an authority upon the diptera, or two-winged flies, is zoological; the preponderant bulk of the work is devoted to the explanation of the structure of these flies and to the systematic arrangement and the definition of genera and species of the same. It will thus be of great advantage (to quote Professor Lankester's editorial preface) "to enable the medical men engaged in tracing the connexion between mosquitoes and human disease to identify and speak with precision of the species implicated." There is, however, a short and valuable *résumé* of the rôle which these insects play in the dissemination of disease. Probably the public at large connect the culicidæ with the conveyance of malaria only. But these insects are intimately connected with the transference of yellow fever and filariasis, and there are grounds for suspecting them to be prime movers in the distribution of other complaints. It is, however, clear that a given mosquito is not necessarily dangerous as a possible carrier of disease. To the non-expert the difference between the genus anopheles and the closely allied culex is not great and even to the better informed not always patent. But while the anopheles has been conclusively proved to be the pest which not only carries but helps in engendering malaria, the culex is quite guiltless and its bites may be received with impunity so far as the more deadly consequences of such bites are concerned. Investigations by Major Ronald Ross, late I.M.S., have shown that the parasite, a protozoön which is directly related to malaria will not live in the body of the culex, or rather that it will not undergo development therein. Hence a monograph setting forth plainly, as does Mr. Theobald's monograph, the anatomical differences which distinguish these two genera is necessary to the practitioner as a manual. But

[1] Proceedings of the Royal Society, No. 456, p. 367.

more than this, it is not certain that all species even of the deadly anopheles can act as germ-carriers. It is therefore of the highest importance to state which species have been ascertained to nourish the parasite in malaria-haunted districts. But the two genera just mentioned by no means exhaust the generic types into which the culicidæ may be divided. Mr. Theobald allows no less than 20 other genera, but less appears to be known of their import as disease-bearers. One, and perhaps the most singular, feature about these biting flies is that their natural food would appear to be the juices of plants. The transition from piercing and sucking the tender shoot of a plant to treating in the same fashion the skin of a human being is from one point of view not great, though the difference in the nature of the food would seem to preclude such a change of habit. Furthermore, it has been estimated, or, indeed, according to some, under-estimated, that not one mosquito in a million ever gets a taste of human blood. How do the millions flourish that have not the opportunity of this more stimulating diet? The problem is hard to solve. It is more easy to grasp the meaning of the fact that with rare exceptions it is the female insect only which sucks blood. The female needs more nutriment than the male for the development of her large and yelk-laden eggs. There is, however, at least one species, the *Stegomyia fasciata*, referred to by Mr. Theobald in which the male is as carnivorous as the female. But according to one authority quoted by the author the male mosquito varies his vegetable diet when he can with wine. "Male mosquitoes are fond of wine," writes this gentleman, "and every evening at dinner I see some on the stopper of the decanter or at the edge of a wine-glass." It is fortunate for us that mosquitoes like most other creatures have their enemies; but, unfortunately, these foes are not sufficiently bloodthirsty or are without sufficient energy to do much in checking the crowds which feast upon our blood in so many parts of the world. The larvæ are pursued and enjoyed by fish; and the introduction of fish into pools suspected to harbour the insects has been often advised as a precautionary measure. Mr. Budgett, who has lately made two expeditions to the Gambia in order to investigate the development of certain fish, found himself immune from malaria owing to the fact, as at least he interpreted it, that the available standing water near to the scene of his labours had been carefully stocked with the fry which he was engaged in examining. Birds take their toll of the mosquitoes and the fierce dragon-fly catches them, as it does other insects, upon the wing. The proverbial fly in amber is often a mosquito; and in those early days there were clearly less chances of tasting human blood, so that the appetite has plainly developed recently. Still more so in the case of "a wingless gnat" described by Brodie from the Purbeck beds, a geological stratum which is of course of mesozoic age and long antedates the appearance of man upon this globe. Of all of these and of other matters does Mr. Theobald treat in his extensive monograph. The structure of the flies is illustrated by "process" blocks in the text; the use of these has led to the employment of smooth glittering paper which is not quite satisfactory and is even a little trying when the volumes are studied by artificial light. The various species are largely illustrated in a series of very beautiful plates which fill the third and smallest volume of the three. These plates are coloured and their execution can hardly be too highly praised.

A Text-book of Physiology. Edited by WILLIAM H. HOWELL, Ph.D., M.D., Professor of Physiology in Johns Hopkins University. Vol. II. London and Philadelphia: W. B. Saunders and Co. 1901. Pp. 553. Price 13*s.* net.

THE subject of physiology has become so vast, the constantly increasing mass of its literature is so great, that few even amongst the best teachers find themselves competent to write to their own satisfaction on all its branches. The contributions of skilled physiologists to the English journals may perhaps be read through and understood in the course of two or three evenings, but many of the articles in such periodicals as Pflüger's *Archiv*, Hoppe Seyler's *Zeitschrift für Physiologische Chemie*, and Dubois Reymond's *Archiv* cannot be thus lightly dismissed. Few men are so familiar with foreign languages as to follow the thread of a long argument with the same facility that they can pursue it when written in English. It would not be difficult to indicate several recent articles in each of the above journals that require very close and prolonged attention to enable the statements of the author to be thoroughly understood. It is not surprising, then, that when a new text-book is contemplated even the most accomplished writer should shrink from attacking every branch and should prefer to call upon those who have made special study of each department, reserving for himself one or two in which he is specially interested. This practice has been adopted by Professor Schäfer in his recently-completed "Text-book of Physiology," by Richet in his "Dictionnaire de Physiologie" now in course of publication, and by Professor W. H. Howell in the fine work before us.

A large portion of the first volume, to which we called the attention of our readers a few months ago, was written by Professor Howell who was the author of the articles on Blood, Lymph, Secretion, Digestion, Nutrition, and Movements of the Alimentary Canal, Bladder and Ureter; that on Respiration and Animal Heat was written by Dr. E. T. Reichert; that on Circulation by Dr. John G. Curtis and Dr. W. T. Porter; and that on the Chemistry of the Animal Body by Dr. Graham Lusk.

The present, second, volume contains the following articles. The General Physiology of Muscle and Nerve and Special Muscular Mechanisms, by Warren P. Lombard, professor of physiology in the University of Michigan; the Central Nervous System, by Henry H. Donaldson, professor of neurology in the University of Chicago; the Special Senses, by Henry P. Bowditch, professor of physiology in the Harvard Medical School, and Henry Sewall, professor of physiology in the Denver College of Medicine, medical department of the University of Denver—the former writer taking vision and the latter the ear, cutaneous and muscular sensations, the equilibrium of the body, smell and taste, and voice and speech; and finally, Reproduction, by Frederick S. Lee, adjunct professor of physiology in Columbia University.

The long and carefully written article by Professor Warren P. Lombard on the General Physiology of Muscle and Nerve in the second volume is interesting from many points of view. In considering the subject of fatigue in particular he sums up the results of the numerous experiments that have been made of late years by Mosso, Lombard himself, Lee, Maggiora, Waller, Bernard, Hodge, and others. The cause of fatigue is not even yet quite clear. Raymond, a recent authority, for example, explains it in the case of the muscle-nerve preparation on the supposition that the destruction of the muscular tissue predominates over its anabolism or building up and that consequently after a time its contractile power is lost; but he immediately adds that fatigue also results from the accumulation of the products of contraction, sarcolactic acid and acid potassium phosphate which to a certain extent act in preventing contraction but being removed during a period of rest enable the contractile power to be recovered. In the fatigue of muscle following volitional exercise the cause is chiefly in the voluntary motor cells. Professor Lombard, however, very justly remarks that not only the muscles employed in work but other muscles, even when kept at rest, have their irritability reduced, which would suggest that the fatigue which finally asserts itself is due to some general, rather than local,

influence. No reference is given by Professor Lombard to the remarkable observations on the microscopic changes in fatigued and exhausted muscle made by H. M. Bernard and C. F. Hodge.

Professor Donaldson in his article on the Central Nervous System gives a good *résumé* of the numerous experiments that have been made by Goltz, Ferrier, Schrader, Schäfer, and others, elucidating the functions of the several parts of the encephalon. On turning to the account of the cerebellum to ascertain whether any advances have been made in our knowledge of the functions of this remarkable organ it is astonishing to find how limited that knowledge is. Many of the statements made in the older treatises are no longer admissible and have been gradually eliminated, but little of a positive nature has been added. The cerebellum is a mine for research that has yet to be explored. Looking at its size, its great complexity of structure, and its extensive connexions with other parts of the nervous system, it is hard to believe that it is merely associated with the proper contraction of the muscles and the maintenance of the equilibrium. Professor Donaldson devotes a little more than one page to its consideration, but observes in the first paragraph of his account of it that it is almost as variable in its development amongst the vertebrata as the mantle of the cerebral hemispheres, and that in many fish and mammals it is asymmetrical in its gross structure. Where this variety exists the actions and movements and sensory endowments of the animals should obviously be subjected to close scrutiny.

The Physiology of the Special Muscular Mechanisms has been intrusted to the hands of Professor Warren Lombard of Michigan and Professor Henry Sewall of Denver who give a short account of the joints, the method of action of muscles upon the bones, and the mechanism of the different positions of the body in standing, walking, and running. The greater part of this section is devoted to voice and speech. A curious case is described of a pupil of Professor Sewall who possesses a whistling register in his larynx having a range of about one and a half octaves. The lips have nothing to do with this sound and no other tones can be produced simultaneously with it.

Professor Lee's article on Reproduction describes the process as far as to the formation of the placenta, but the author does not attempt to give any account of the development of the several parts of the embryo. The various doctrines that have been advanced to explain the phenomena of heredity are very concisely but well given. He cannot accept Darwin's theory of pangenesis.

Professor Bowditch of Harvard University, under the heading of the Senses, without contributing much that is novel, gives a description of each sense that is thoroughly intelligible and supplies, especially in the case of the hearing, some good and original drawings.

By the selection of a large octavo page the editor and the authors of the several articles have contrived to introduce a very large amount of information in the 1100 pages at their disposal. The illustrations are clear and good and are fairly numerous. The present volume contains 229. There is a remarkably good index. We are of opinion that this is one of the best as well as least expensive treatises on physiology that has yet appeared.

Clinical Pathology of the Blood. By JAMES EWING, A.M., M.D., Professor of Pathology in Cornell University. Illustrated with 30 Engravings and 14 Coloured Plates. London: Henry Kimpton. 1901. Pp. 432. Price 18*s*.

THIS volume is concerned with a branch of clinical pathology which is rapidly assuming a position of considerable importance in the educational curriculum of medical students. Within the last few years great advances have been made in our knowledge of the pathology of the blood and several critical works on this subject have been published; but knowledge grows apace, and at the present time few of them are altogether suited to the purposes of teaching or for the requirements of the present-day clinician; moreover, it must be remembered that a large proportion of the more recent contributions to this comparatively new science remain buried in the archives of foreign societies and medical journals until some enterprising author such as Professor Ewing sifts the wheat from the chaff and includes in book-form all that is really important to the student. Immense pains have obviously been taken in the compilation of this book to bring the subject with which it deals completely up-to-date, and for those who desire to pursue the study of any particular subject beyond the scope of the author's scheme a most elaborate bibliography is appended at the end of each chapter. For the convenience of different classes of readers all matter of importance is embodied in the main text, while abstracts of special articles of theoretical or academic interest are printed in small type for occasional reference. The general design of the book is excellent: the opening chapter describes the practical technique of the various methods employed in hæmatology. The particulars and minute description of these methods have evidently been written with a view to assist the student who has to work without elaborate resources. This is a feature which will commend itself to teachers in many of our own pathological laboratories in which the equipment is not always on a generous scale. The subsequent chapters of Part I. are concerned with the chemistry, morphology, and physiology of the blood; in these the results which have been, or may be, attained by the application of the methods already described are referred to in detail and their bearing on clinical diagnosis is fully indicated. The second part contains an account of the diseases themselves to which the methods of hæmatology are applicable. These diseases are divided into groups or natural orders and particulars are supplied for the differentiation of the members of each group by the simplest and best methods of examination. As each disease comes under consideration the blood condition is systematically described with reference to its physiological, morphological, chemical, and physical characteristics, and in those cases in which micro-organisms play a part the bacteriological aspect of the disease is given in detail—in fact, full instructions are supplied in each case for establishing a diagnosis by the expedients of hæmatology. Taking, for example, enteric fever as a typical example of a disease in which such methods have been proved to be of value, we find in the first paragraph of the chapter which discusses this disease a general description of the blood as a whole. The succeeding paragraphs are concerned respectively with the general characteristics of the red cells, of the leucocytes, and of the other formed elements in the blood. Next are described the variations which occur in different types of this disease with respect to the several elements of the blood, as also are the changes which occur under treatment and as the result of complications. Then follows the application of the information thus acquired to the purposes of diagnosis and prognosis, and finally the bacteriological features of typhoid fever are briefly alluded to.

As would naturally be expected, great importance is attached to the value of the "blood count." This is a trump card in hæmatology, since the evidence it affords is more trustworthy than that of a purely chemical or physical examination. The author draws largely upon the writings of Ehrlich in his description and classification of leucocytes and on those by Rieder in the nomenclature of white cell pathology. Among the new words which have been invented for descriptive hæmatology we notice the term "eosinophilia," which is applied to the condition of the blood which is characterised by an excess of eosinophile cells. This example of the new nomenclature does not appeal to us as altogether satisfactory, though there

is more to be said in its favour than for the abbreviated form of eosinophile cell—namely, "eosin"—which is generally used by Professor Ewing. It is to be hoped that this objectionable term will not creep into British literature.

Far less satisfactory are the chapters which are confined to the purely chemical side of hæmatology, but this is no fault of the author, for at the very threshold of the subject we are faced with difficulties which have not so far been overcome. For instance, the estimation of the alkalinity and basic capacity of living blood—a fundamental requirement for further chemical investigation—can at best only be determined approximately. In view of the influence of alkalinity on the absorption of carbonic acid by the blood and again of carbonic acid exchange in many pathological conditions, it is greatly to be regretted that this department of hæmatology is of so little practical use at the present time.

The illustrations, both coloured and uncoloured, especially those which show the congregating cycle of the tertian malarial parasite and the cells of blood differentiated by triple staining, are excellent and for the most part original. With the exception of the statement which appears on page 286, and which is to the effect that the blood of rheumatic fever is sterile, it is difficult to find any opening for adverse criticism either as regards the general design of this book or its execution.

Lehrbuch der Gynäkologie. (*Text-book of Gynæcology.*) By Professor MAX RUNGE. With numerous Illustrations in the text. Berlin: Julius Springer. 1902. Pp. 468. Price 10 marks.

THIS text-book of Professor Runge is written with a true conception of the place that modern gynæcology should take in medical practice. It is not sufficient, as we are told in the preface, to treat merely the local disease, it is usually necessary also to treat the patient herself. The tendency of gynæcology is so much towards a narrow specialism that such a warning is by no means out of place at the present day. The best gynæcologist is he who is also a general physician and who is therefore in a position to take a comprehensive view of the condition of the patient as a whole. Written in such a spirit the book cannot fail to attract attention. It is a book of considerable merit and the author has carried out his design with success.

The chapter on the Diet and Special Hygiene of Women is written clearly and concisely and in it useful rules as regards personal habits and other matters are laid down for the guidance of women at the different periods of their life. Professor Runge lays particular stress upon the importance of physical exercises for young girls to be carried out whenever possible in the open air.

In the chapter on Displacements of the Uterus he points out that the round ligaments would hardly contain so much muscular fibre did they not play a more important part in the maintenance of the normal position of the uterus than some writers credit them with. The inflammatory conditions in the pelvis producing acquired anteflexion of the uterus are regarded as of more importance than the displacement itself, and support is given to the view that the condition is really one of pathological fixation of the uterus, a view which enables the surgeon to form a better idea of the prognosis and treatment of the disease than if he regards it primarily as one of the varieties of displacement of the uterus. For bad cases of prolapse treatment by ventrofixation combined with plastic operation upon the vagina and perineum is recommended.

The chapter on Metro-endometritis of the Cervix and Body of the Uterus is very complete and gives a good account of the best methods, medical and surgical, of treating such cases. In considering the operative treatment of cancer of the uterus the surgeon is warned to give due consideration to the fact that women with a carcinoma of the uterus, the complete removal of which is a matter of doubt, often live a long time, whilst a difficult hysterectomy, especially if carried out through the abdomen, is attended with a very considerable risk to life without giving the patient any sufficient guarantee, even if she recovers, that she will enjoy any long immunity from recurrence.

The illustrations are good and the book is one of reasonable dimensions.

LIBRARY TABLE.

An Industrious Chevalier. By S. SQUIRE SPRIGGE. London: Chatto and Windus. 1902. Pp. 311. Price 6*s*.—Dr. Sprigge's book starts well from the very title. Readers of Perrault will remember the "morality" which that prince of story-tellers affixes to the immortal tale of "Puss in Boots":—

> "Quelque grand que soit l'avantage
> De jouir d'un riche heritage,
> Venant a nous de père en fils;
> Aux jeunes gens, pour l'ordinaire,
> L'industrie & le sçavoir faire
> Vallent mieux que des biens acquis."

Dr. Sprigge's Chevalier and the hero of "Puss in Boots" both exhibit the same kind of industry, merely differing in degree. The former had only his own unaided talents upon which to depend, while the industry of the latter mainly consisted in corroborating the unblushing lies told by that very astute animal the cat. He received his reward in a princess and half a kingdom, while Dr. Sprigge's hero retired with a modest competence to a rural retreat in Essex. With regard to the manner in which he made this competence we must refer the reader to the book itself which will be found delightful reading. It is naturally difficult for us to say much about a work written by one so closely connected with ourselves as is Dr. Sprigge, but we may remark that the author of "The Life and Times of Thomas Wakley" in the work before us gives evidence of great versatility, while his knowledge of medical life and medico-legal situations is turned to excellent account.

JOURNALS AND MAGAZINES.

Annals of Ophthalmology: a Quarterly Journal and Review of Ophthalmic Science. Edited by H. V. WÜRDEMANN, Milwaukee. St. Louis, Mo., U.S.A.: Jones H. Parker. Vol x., No. 4, October, 1901; Vol. xi., No. 1, January, 1902. Price $4 per annum.—The articles contained in this well-conducted journal—each of the parts of which run to about 150 pages—are both numerous and interesting. The October number contains a translation of an article by Dr. Hugo Woff of Berlin, entitled "Observations with the New Electric Ophthalmoscope," the advantages of which are strongly insisted on. Dr. M. F. Weymann of St. Joseph, Mo., in another article gives the Pathogenetic Eventuations of Chalazial Tumours. The editor of the *Annals* gives the Treatment of Recent Embolism of the Retinal Arteries by Deep Massage, with a report of two cases of embolism cured by this method. Dr. L. Steiner of Soerabaya, Java, contributes an article on Trachomatous Spots in the Malay in which he states that trachoma in the Malay is accompanied in many cases with pigment patches on the conjunctiva. Dr. F. C. Heath of Indianopolis, Ind., describes a case, with a drawing, of Amblyopia from Carbon Bisulphide Poisoning, a very rare affection. Dr. W. Campbell Posey of Philadelphia gives a case, with a drawing, of an Unusual Form of Superficial Punctate Keratitis. Dr. W. R. Broughton writes upon Residual Sensations as a Test for Diplopia or Heterophoria. Dr. R. Blysma of Middelburg, Netherlands, gives a brief account of a case of Opacities in the Vitreous associated with Amenorrhœa which was cured by rational general treatment. Dr. Albert C. Snell of Rochester, N.Y., gives a report of a case of Dermoid Cyst of the Iris not preceded by Trauma. Both numbers of the journal contain numerous abstracts from the ophthalmological literature of Germany, France, Russia, and other continental nations.

THE LANCET.

LONDON: SATURDAY, MAY 10, 1902.

The Royal Colleges in England and the General Medical Council.

IN another column we publish the report made by Dr. NORMAN MOORE, the representative of the Royal College of Physicians of London on the General Medical Council, upon the proceedings of the Council at the special session held in February of this year. The importance of the questions involved is so great that we make no excuse for recapitulating the various events that our readers may fully appreciate how the matter stands. It will be remembered that in December last at the winter sitting of the Council for 1901 a committee of the Council was appointed to prepare a report on the differences existing "between certain licensing bodies on the one hand and the General Medical Council on the other regarding the courses and conditions of study and the recognition of the institutions and schools in which the required courses may be taken." We have on more than one occasion referred to the unfortunate, and unfortunately acute, divergencies of opinion which have arisen between certain of the licensing bodies, notably the Royal College of Physicians of London and the Royal College of Surgeons of England, and the central authority in the kingdom respecting the education of our medical students. We took it on ourselves to make certain suggestions that we believed would pave the way for an amicable settlement but we do not see many signs of the disputants approaching one another; nor can the proceedings at the special session of the Council, which were fully reported in our columns during the sitting, be described as constituting a peace congress.

The main point at issue between the parties is of course that the General Medical Council claims a right to select the institutions in which the preliminary scientific studies of the medical students of the various curricula may be undertaken after the students have registered. The General Medical Council has, in fact, refused to recognise certain institutions which, after investigation, have been accepted as suitable places of study by the two Royal Colleges. The Council at the special session in February received the report of the committee appointed to investigate thoroughly the delicate matter at issue, but the meeting was productive of no final settlement. The committee issued eight recommendations. All of these formed more or less interesting reading but several were of such a nature as to be obviously doomed to failure. The first five recommendations stated with some particularisation that in consequence of the differences of the methods under which students, working under varying regulations, are accepted as candidates for examinations, the qualifications of certain universities and licensing bodies do not ensure that the persons holding the qualifications possess the requisite knowledge and skill for the efficient practice of their profession. Included in this list were the University of Oxford, the University of London, the Royal College of Physicians of London, and the Royal College of Surgeons of England. A further clause recommended that the Council should, after preliminary warning, represent this fact to the Privy Council with a view to deprive the above bodies of their power of granting qualifications to practise unless they altered their regulations with regard to the preliminary training of their students. It is no matter for wonder, therefore, that the tone of the discussion of the recommendations at the special session was not completely favourable to the adoption of the report. The most important of our corporations and the most ancient and learned of our universities are as much bound in honour and in law to assist the General Medical Council to keep medical education at a high standard as are the most recent and least influential of the qualifying corporations. But while the Council recognised this—as do all of us—it could not, sitting in conclave, seriously suggest that the bodies which we have named should be threatened with the intervention of the Privy Council, unless the clearest proofs of culpable obstinacy or wilful blindness to the needs of the student were forthcoming. It is no matter of surprise, therefore, that Dr. D. C. MCVAIL, chairman of the committee, asked leave of the Council to withdraw the recommendations, while the leave was granted without a division. The Council then resolved to request the Conjoint Board of the Royal Colleges of Physicians of London and Surgeons of England to furnish it with certain information regarding the courses of study in the preliminary subjects which the Royal Colleges required and also regarding the steps which were taken to ascertain whether the various schools and colleges recognised by the Conjoint Board were worthy of that confidence. Dr. NORMAN MOORE, who with Mr. T. BRYANT sat on the committee and signed a minority report dissenting from the recommendations, gave an undertaking that the Royal Colleges would furnish the utmost possible information to the Council. And so the matter was left.

Dr. NORMAN MOORE has now made a report to the Royal College of Physicians of London upon the situation that has been created. It will be observed (see p. 1354) that he adheres to the position of independence claimed by the corporation which he represents. He points out that in his opinion the Council has no power of visitation of institutions and no power to compel the Colleges to visit the institutions which they recognise for any part of the course. If this be so it seems doubtful whether the Council has power to demand under the Medical Act the information which he has undertaken shall be supplied. However, he thinks that the Royal College of Physicians of London would be acting rightly in furnishing what is requested of them. We entirely agree with him. We have before urged on both the parties the obligation to give and take a little, and in acting as Dr. NORMAN MOORE suggests the Royal College of Physicians of London, without in the least departing from the dignified position it has rightly assumed, might give information which would greatly help to bring matters to a satisfactory issue. The Royal Colleges devote a great amount of time and trouble to visiting and revisiting the institutions which they recognise for preliminary

study and if the laboratories or teaching staffs do not, in the opinion of the visitors, reach the necessary standard the school or college is not added to the list. If the defaulting institutions are already on the list and are found to have deteriorated to such an extent as no longer to satisfy the requirements of the Royal Colleges their names are removed. We believe, therefore, that the General Medical Council may, without sacrificing any of the power which it claims to hold over the examining bodies of the United Kingdom, meet the Royal Colleges in this respect by acknowledging these institutions and so end the *impasse* which now exists. We should not make this suggestion if we thought that there was the slightest danger of the central authority being jeopardised by the concession. In concluding his report Dr. NORMAN MOORE states that he has endeavoured to make clear to the Council that as the powers of the Royal College of Physicians of London as regards its own curriculum rest not only upon Acts of Parliament and charters but also upon its obvious competence to deal with questions of medical education, it cannot permit any encroachment upon its sphere of responsibility, but that it will always in the future, as it has since the General Medical Council came into existence, do all in its power to aid the Council in the duties which the Medical Acts have prescribed for it. We trust that the approaching session of the General Medical Council will result in harmony being restored between parties to a quarrel who have one and the same object in view—namely, the furtherance of medical education.

The Coal Smoke Abatement Society and Domestic Grates.

THE Coal Smoke Abatement Society is a most useful institution which has not received from the public anything like the attention which it deserves. Especially would we urge upon medical men that the work upon which this society is engaged is worthy of their support, for the part that is played in pathology by the murky atmosphere of London and other of our great cities can hardly be exaggerated. The society needs more subscribers and its justification in asking for them lies in its published work. A glance at the balance-sheet of the society, issued with the last annual report, shows that the small sum which has been placed by the public at the disposal of the executive has been most judiciously used. Unlike many other somewhat similar societies nothing has been wasted in the multiplication of direct or indirect advertisements, but the money has been spent in actual and valuable work, often of an arduous and delicate nature. We have chronicled in our columns a good many examples of the society's activity; especially we have called attention to its vigorous support of actions instigated by the metropolitan boroughs, or late vestries, against the owners of foul factory chimneys. We have felt, however, when recording with pleasure the fining by magistrates of those responsible for smoky factory chimneys, that it was not exactly fair that the domestic chimney should be permitted to create a nuisance with impunity. A factory chimney will produce a much more imposing volume of black smoke than a domestic chimney, but the numerical proportion of domestic chimneys to factory chimneys is out of all proportion large, and it is unjust to saddle the factories with all the damage that is done to our health, our public buildings, our works of art, and our gardens by coal-smoke. The domestic chimney plays its wicked part in adding to the virulence and opacity of fogs, and to reform the domestic chimney would preserve plant life where it now often succumbs, and would allow trees and shrubs to show the town-dweller some of the beauty of nature's differing shades of green, instead of presenting merely a grimy monochrome of scoted leaves and blackened bark. And, which is far more important than æsthetic considerations, such reform would have an enormously beneficial influence upon our health statistics. We are glad, therefore, to see that the Coal Smoke Abatement Society has projected an inquiry into the subject of domestic grates and has undertaken the task in exceptionally favourable circumstances. The control of the production of coal smoke in large towns is obviously a big question and really important results must await probably the active assistance of the Government. Such assistance has already, we see, been forthcoming in the investigation which is fully described at p. 1342 of this issue. The object of this investigation was to discover a grate which would permit the domestic use of smoky coal without the accompanying smoke that is now provided by thousands of private chimneys. As the report says, there is no expert on the subject and no manufacturer of grates has turned his attention to the production of a smokeless form of grate, while at the same time the great majority of householders are at present unwilling to accept anything but open grates burning smoky coal. The Coal Smoke Abatement Society therefore instituted an investigation into the subject of domestic grates, inviting manufacturers by advertisement to offer their grates for the tests. The work has been excellently planned and energetically carried out by Dr. H. A. DES VŒUX, the treasurer of the Coal Smoke Abatement Society, and the late Mr. BRYAN DONKIN, by whose recent death the Institute of Civil Engineers and the Institute of Mining Engineers have suffered a heavy loss. From the charts accompanying the article our readers will gather the facts elicited and also will see at a glance the order of merit in which the grates that were submitted for examination stand. It is to be regretted that so few manufacturers answered the invitation and that therefore it cannot be asserted even that the best grate in the market has been demonstrated. Moreover, one important difference between the conditions under which the grates were tested and those under which the domestic grate is ordinarily used provided a fallacy in the results. The grates were stoked so that the fire never fell below a certain level—that of the top bar. In actual everyday use this, of course, would not obtain and a grate that was comparatively smokeless with so constant a fire might be extremely smoky when the fuel was much less regularly provided. The investigation, however, demonstrates marked differences between the coal-absorbing and the smoke-supplying properties of various grates, and the Coal Smoke Abatement Society may well be encouraged by the results of its experiments.

The London Water Bill.

MR. LONG has doubtless been surprised at the treatment meted out to his Bill by the Joint Select Committee which was appointed to consider it by the two Houses of Parliament. We cannot say that we also are surprised. At the eighth sitting of this Committee it was decided to delete the representation of the metropolitan boroughs from Schedule E of the Bill and to delete also the representation of the urban districts and of all the boroughs in the counties of Essex, Middlesex, and Surrey, with the single exception of the borough of West Ham. The promoters of the Bill, Mr. LONG, Mr. RITCHIE, the Attorney-General, and Mr. GRANT LAWSON, were, moreover, requested to prepare a fresh schedule on the plan indicated by this decision of the Committee for a Water Board consisting of about 35 members, including the chairman and vice-chairman, but without giving a majority of the Board to the representatives of any one county. It was announced by Lord BALFOUR of BURLEIGH that this was not a unanimous decision but was that of a majority of the Committee. It was inevitable that the Government should make a move in defence of the Bill, and accordingly on Tuesday last Mr. J. D. FITZGERALD, counsel for the Local Government Board, but speaking expressly as the mouthpiece of a regretful Government, urged upon the Committee to reconsider its drastic resolve. To this course, upon consideration, the Committee agreed, and a decision, presumably a final decision, is promised after an adjournment until Monday next.

The schedule which was referred back to the promoters of the Bill provides solely for the representation of authorities on the Water Board, and the authorities named are classified under the counties in which they have jurisdiction. Representation is given also to the Conservators of the Thames and to the Lee Conservancy. It cannot be said that under the Government scheme the metropolitan boroughs were inadequately provided for, for six of the larger boroughs were to have two representatives each and the remaining boroughs one representative each. In THE LANCET we have from the period of their creation constantly urged on the representatives of the London boroughs the importance of the privileges entrusted to them, especially those concerning the water-supply. Had they shown a just appreciation of their duties they would have taken the precaution of being adequately represented before the Joint Select Committee when their claims to representation on the proposed Water Board would not have been deleted, whether only temporarily or permanently remains to be seen, with the stroke of a pen. It is, of course, possible that the metropolitan borough councils thought that they had done all that was required of them to vindicate their position when they passed resolutions and forwarded copies of them to the President of the Local Government Board. Mr. RAM, K.C., stated at the eighth sitting of the Committee that metropolitan borough councils representing 2,500,000 people were in favour of the Government proposal and that those opposed to it represented 500,000 only of the population. The metropolitan boroughs may, it is permissible to conceive, have thought that they were safe in leaving their case in the hands of the Local Government Board, but the attitude of the Joint Select Committee must have opened their eyes.

Some of the witnesses who gave evidence before the Joint Select Committee stated their opinion that the provisions made for the election of representatives on the proposed Water Board were more unsatisfactory than were those contained in the Bill which Lord JAMES of HEREFORD introduced in the year 1896. This Bill, which was entitled the "Metropolitan Counties Water Board Bill," was of a more simple character than is the present Government measure. It contained no more than 10 clauses and occupied only four pages. The composition of the Board proposed by Lord JAMES has now received the modified approval of the Right Honourable G. J. SHAW LEFEVRE, late President of the Local Government Board, and of the Parliamentary agent of the London County Council. Under Lord JAMES'S scheme the London County Council was to appoint 16 members, the City of London, the county councils of Middlesex and Essex, and the borough of West Ham two members each, and the county councils of Hertford, Kent, and Surrey, the borough of Croydon, the Conservators of the River Thames, and the Lee Conservancy one member each. Lord JAMES'S proposal, therefore, was to give a majority on the Water Board to the London County Council and the opposition to the measure was on that account so general and so strong that the Government had to drop it. The Joint Select Committee which is now sitting, in returning the present Water Bill for revision, by advising that the proposed Water Board should not contain a majority from any one county, has evidently tried to induce Mr. LONG to avoid the error which wrecked Lord JAMES'S Bill. But neither Mr. LONG nor the Government sees the matter in that light.

The Government Bill, as we have already pointed out, pleases no one. In one respect Lord JAMES'S Bill was infinitely preferable to Mr. LONG'S Bill. The Water Board proposed by Lord JAMES would not have been compelled to buy the present defective undertakings of the metropolitan water companies. It would not have been in its first unprotected infancy thrust with tied hands into a series expensive arbitration cases for which it was entirely unprepared, and this may well be the fate of the Water Board if it should be constituted according to Mr. LONG'S scheme. On the contrary, Lord JAMES'S Water Board would have had power to inquire into and to enter into negotiations, to make and to adopt provisional agreements respecting any matters relating to the water-supply, and to take such steps for promoting or opposing any Bills in Parliament as might appear to the Board necessary or expedient in relation to the water-supply. There is a homely country proverb which expresses the idea that it is always inexpedient at market to purchase an animal which is protected from observation by an extraneous covering. The popular phraseology of the adage should be known to Mr. LONG, but the Bill which he has introduced shows that he has made no use of the teaching which it conveys. Happily, he still has time to reconsider his position and we trust that the value of the water companies' undertakings will be accurately ascertained.

The proceedings of the Committee have resulted in the production of some interesting evidence. We now know

that Mr. LONG'S Bill was drawn up by a secretary or assistant secretary to the Local Government Board and that the gentleman selected for this work had, according to his own account, no practical knowledge of matters pertaining to water-supply. Counsel who appeared on behalf of the Local Government Board stated that the Bill was drawn up on the recommendations of the recent Royal Commissions on London Water. In the case of the Balfour Commission, however, counsel did not add that the evidence given to the Commissioners in regard to the amount of water available has since been proved inaccurate. The Balfour Commission gave its report on the strength of this evidence and is not too severely to be blamed because it was misled in matters of fact. Nor, on the other hand, can an expression of opinion founded on erroneous data be treated as gospel—perhaps it should be classified as apocrypha, a designation suggested by Lord LLANDAFF in regard to some of the dicta of the Balfour Commission. The statement made by the counsel for the Local Government Board that the Water Bill was in accordance with the Llandaff report was promptly disposed of by Lord LLANDAFF, whose opinion it was that the water-supply of the metropolis could be best carried on by men who had a practical knowledge of the matters pertaining to the supply of water.

Annotations.

"Ne quid nimis."

TYPHOID FEVER AND PREGNANCY.

THOSE of our readers who have followed the course of the illness of the Queen of Holland will not have been surprised to hear that she has had a premature confinement. Typhoid fever complicated by pregnancy is always a condition of great gravity, although, happily, the old view taught by Liebermeister and others that these cases always have a fatal issue is no longer held. Cazeaux was the first to combat this teaching and further experience has shown it to be false. The mere presence of the fœtus in utero does not appear materially to affect the course of the fever but it exposes the patient to all the dangers of a premature delivery. This results in from 63 to 83 per cent., or in about two-thirds of all the cases. The likelihood of its occurrence depends partly upon the stage of the pregnancy and partly upon the severity of the attack of the fever. It occurs more frequently in the early than in the later months of pregnancy and more frequently when the general disease is running a severe than when it is running a mild course. In some cases, no doubt, the fever causes the death of the fœtus, in other cases hæmorrhages occur into the decidua, hæmorrhages similar to the so-called "uterine epistaxes" of Gubler which occur from the uterus in patients suffering from typhoid fever who are not pregnant, while in other cases, again, the typhoid bacilli or their toxins find their way directly into the fœtal blood and tissues. In 1841 Manzoni published a case in which he found what he thought were characteristic typhoid ulcers in the intestines of a fœtus born at seven and a half months and dying some 30 minutes after its birth. Eberth, Widal, and others have demonstrated the typhoid bacillus in the blood of the placenta and also in the blood and tissues of the fœtus. Of late years further proof of the transmission of the poison has been shown by the recognition of fœtal typhoid fever. In a case recorded by Ernst the fœtus lived for 93 hours and the typhoid bacillus was found in the spleen, the brain, and in the marrow of some of the bones. Quite recently, too, Widal's reaction has been obtained in the blood of the fœtus and it has been shown that various degenerative and sclerotic changes can at times be found in the tissues of a fœtus born of a mother suffering from typhoid fever. These are no doubt due to the action of various toxins and may be the cause of the death of the fœtus in certain cases. A question of much importance in connexion with the illness of the Queen of Holland is the effect of the occurrence of a miscarriage upon the prognosis of the disease. An early abortion appears to involve more danger than a premature delivery, no doubt owing to the greater likelihood of severe hæmorrhage occurring in the former instance. The danger, however, depends most of all upon the stage of the disease at which the pregnancy is interrupted. The earlier the contents of the uterus are discharged the better, no doubt because the patient's strength is not yet greatly reduced. Goldschmidt found that death occurred without abortion in 3·1 per cent. of the cases, after abortion in 27·5 per cent., while recovery took place in 25 per cent. without abortion and in 44 per cent. after abortion. In 36 cases collected by Duguyot in patients before the seventh month of pregnancy 18 recovered after aborting, while 13 recovered without aborting. The prognosis in any given case will depend upon the duration and the severity of the fever, the duration of the pregnancy, and the presence or absence of severe hæmorrhage or septic infection following the delivery. Gusserow considers that these patients are especially prone to septic poisoning, and no doubt this is true in so far that their powers of resistance must be greatly lessened. The treatment of these cases does not differ from that of any ordinary case of typhoid fever. If premature delivery occurs the great danger which the patient runs from hæmorrhage or septic infection must be borne in mind and every means must be taken to diminish the strain of the delivery as far as possible.

THE INVESTIGATION OF CANCER.

THE recent appeal for £100,000 to be devoted to the investigation of cancer has stimulated our lay contemporaries to draw the attention of the public to the continuous extension of malignant disease and to the urgent need of a careful and thorough study of malignant growths. The articles have been numerous and for the most part sound, useful, and likely to stimulate generosity. In an article published in the *Morning Post* of May 2nd there is, however, an attempt to explain to the public the whole *modus operandi* of a malignant tumour in which the writer rather loses himself in describing the how and the why of the growth of a cancer. He starts with the statement that the "working hypothesis" now generally accepted by investigators is the autositic theory. This is certainly not in accord with facts. There are, it is true, a few pathologists who still cling to the autositic theory, but the tendency at the present time is certainly to accept the microbic hypothesis, and those who have done most within recent years to advance our knowledge of the subject both in this country and abroad are investigating the subject chiefly from this aspect. The writer goes on to make clear to the lay mind what is meant by the "autositic theory." He explains that certain cells "rebel" against a weakened nervous system, indulge in a "cannibal diet" by feeding on the neighbouring tissues, form "colonies of autosites" in every part of the body, and so lead to death. This is all very pretty, but it is, at least so far as we know at present, pure imagination. The very basis of the whole theory is a weakening of the nervous system and we have absolutely no evidence at present that in malignant disease there is any change in the nervous system. Where the nerve supplying a part of the system is divided certain very definite phenomena appear, but there is no special proneness

to the development of malignant growths and many other facts might be brought forward in opposition to the nervous hypothesis. We hold no brief on behalf of the microbic theory, but we cannot admit that the fact that "the subsidiary growths always have the organisation of the tissue in which the original colony is situated" is "utterly inexplicable" on the assumption that there is a specific microbe of cancer. It is not necessarily a bacillus that we are dealing with, as the writer of the article seems to imagine. A microbe living in a cell, multiplying rapidly and stimulating the cell to division, will explain fully all the phenomena of malignancy. Be this as it may, it is unwise to base the treatment of cancer on so unstable a foundation as the unproved autositic theory. The writer suggests that the profitable pathways of research are to find "some non-surgical means of strengthening the resisting power" of the tissues and "some means of causing disease in the colonies." We fear that there is not much to be hoped for in these directions. When we possess accurate knowledge of the cause of malignant growths our aim will be to prevent and not merely to cure cancer. It would be unduly optimistic to hope that within the next few years this knowledge will have been attained entirely, but we confidently look forward to progress.

THE WATER-SUPPLY OF ISOLATED HOUSES.

IN the *Builder* of May 3rd an article is devoted to the water-supply and drainage of isolated or detached houses. In such cases the rain-water is usually conveyed by a separate system of drains to an underground tank from which it is pumped to a cistern in the building. As a rule the roof of the house is utilised as a collector and two sets of drains, for sewage and rain-water respectively, must be laid. Unless care be taken there is, therefore, danger of the sewage-drain being connected to the rain-water drain with deplorable consequences. In a case known to the writer of the article the water stored in an underground tank for domestic purposes gradually deteriorated in quality until it became unfit for use. After a careful investigation it was discovered that the drain from a water-closet was connected with the rain-water system. This, the writer adds, was a new house, and if a mistake of this kind can be made during construction it can certainly also be made during subsequent alterations when the position of the two systems has been forgotten. The *Builder* is doing good service by drawing attention to the most common sanitary errors and defects connected with buildings in a series of articles intended for students but nevertheless of great general interest. When a drain is buried out of sight and reach it becomes a source of danger to the whole neighbourhood. There ought to be a manhole at every angle or change of direction in a drain, and it would be well if this safeguard were to be enforced by law.

REMOVAL OF SMALL-POX PATIENTS.

ON May 2nd the Divisional Court was moved on behalf of one Quelch, who had been convicted by Mr. T. J. Jones, one of the justices for Surrey, for obstructing the removal of his son who was alleged to be suffering from small-pox. It appeared that the medical officer of health (Mr. C. M. Fegen) had granted a certificate under Section 124 of the Public Health Act to the effect that the patient was suffering from small-pox and that there was no proper accommodation at the father's house. It was contended on the part of the father, who had endeavoured to prevent the justices' order from being carried into effect, that he had had no notice of any application for an order, that there was in fact sufficient accommodation at the premises in question, and that the magistrates were not justified in acting upon the certificate of the medical officer without more investigation. The court refused to grant any relief, the Chief Justice saying that the magistrates had exercised their discretion and that that could not be interfered with. We trust that this case may serve to emphasise the fact that the justices, acting through the medical officer of health, have an absolute discretion to order removal in every suspicious case, whether the step is taken for the protection of the patient or of those who may be exposed to infection. It is obvious that an order of this kind must be made *ex parte*, that a suspicion of small-pox must be sufficient to justify an order for removal, and that the justices must adopt the opinion expressed by the medical officer. Were it possible for parties to appeal against, or to appear and to give evidence in opposition to, an application for an order that section of the Public Health Act under which the orders are made would become a dead letter. It is also well for medical officers of health to bear in mind that they are under no personal liability if in granting certificates for removal they carry out the instructions of the local authority.

THE CAMBRIDGE MEDICAL SCHOOL.

DR. P. W. LATHAM has addressed to the members of the Senate of the University of Cambridge a remarkable memorandum concerning the medical school of the University. The medical school of the University of Cambridge is now one of the most important in the kingdom and Dr. Latham's memorandum is a wholesale indictment of its business arrangements. We shall be interested to see what steps are taken by the Senate of the University, which body must be fully aware that the medical school is an important branch of the educational tree. It is hardly too much to say that of late years the workers in the Cambridge physiological and pathological laboratories have constituted the best-known group of Cambridge scholars, while the praise that has been bestowed upon the medical school has been unstinted both at home and abroad. Consequently Dr. Latham's memorandum will come as a great surprise to many who have accepted the view that all was for the best in the best of scientific centres.

THE DIAGNOSIS OF CYSTIC KIDNEYS.

CYSTIC kidneys are seldom diagnosed during life. In *American Medicine* of March 22nd Professor William Osler points out that the clinical features are sufficient for diagnosis and he relates the following case. A woman, aged 28 years, who usually enjoyed good health, was admitted to hospital on Jan. 21st, 1899. About a year before the urine was blood-red for nearly a week. In December, 1898, she had for two weeks paroxysmal pain in the right side and the urine was bloody. She also noticed some distension of the abdomen. The prostration and weakness from loss of blood caused her to remain in bed for nearly three weeks. When she got up she noticed that her feet were a little swollen and that her eyelids were puffy. Since the attack micturition had been more frequent by day; sometimes it was performed at intervals of one and a half hours. On admission she looked healthy but was rather sallow. The pulse was of increased tension. The radial and temporal arteries were sclerotic. The cardiac impulse could be felt in the fifth space in the anterior axillary line. The second sound was accentuated. Both flanks showed fulness and were occupied by large irregular tumours. The red blood corpuscles were 2,400,000 per cubic millimetre and the hæmoglobin was 40 per cent. of the normal. The urine was of specific gravity 1007 or 1008 and contained a trace of albumin and usually a few red blood corpuscles. Once a hyaline cast was seen. The quantity passed in the 24 hours was rarely more than a litre. Cystic kidneys were diagnosed. The patient left hospital on Feb. 11th, 1899, feeling comfortable. She was readmitted on Feb. 27th, 1900, with urgent dyspnœa. She had remained well but had at times passed bloody urine. The dyspnœa had existed for four days. The

thorax showed no signs of disease. In the throat were a few white patches which did not yield diphtheria bacilli. She became so cyanosed that tracheotomy was performed on Feb. 28th but without relief. The urine was of specific gravity 1013 and contained many red blood corpuscles but no casts. She gradually sank and died on March 1st. The necropsy showed greatly enlarged kidneys consisting of congeries of cysts. The left kidney weighed 1400 grammes and the right 950. There were marked cardiac hypertrophy and general arterio-sclerosis. The general characteristics of cases of cystic kidney are (1) bilateral tumours in the flanks (in only two out of 88 cases was the disease unilateral); (2) the cardio-vascular changes and urine of interstitial nephritis; and (3) hæmaturia which may occur in paroxysms and be associated with much pain. Diagnosis may be important, as the following case shows. A large cystic kidney was exhibited at a medical society. Professor Osler asked what was the condition of the other kidney and the surgeon said that he had not examined it as his attention was not called to it. The patient died in a few days with uræmic symptoms. As a rule, operation is contra-indicated, for removal of one kidney simply takes away one-half of the available renal tissue. But Mr. Henry Morris has successfully operated in cases of unilateral disease. He says that when the opposite kidney has been ascertained, either by inspection or palpation, to be unaffected the relief from pain and hæmorrhage and the immunity from the danger of suppuration offered by nephrectomy should not be withheld.

INTERMITTENT CLAUDICATION OR LIMPING.

DR. J. H. LEVY describes in the *Philadelphia Medical Journal* of April 12th last the rare and little known disease called "intermittent claudication" or "limping," which was first recognised by Charcot in 1858. Recent researches have tended to show that the disease is one of a neuro-vascular group of ailments which includes other rare affections, such as Raynaud's disease and erythromelalgia. Among the etiological factors, states Dr. Levy, might be included all conditions which produced arterio-sclerosis. Yet the curious fact remained that while arterio-sclerosis was a common affection, intermittent claudication was rare. The most common causes were alcohol, syphilis, undue exposure, and the excessive use of tobacco. The disease occurred almost exclusively in males, a fact which has been already alluded to in these columns.[1] Among the cases recorded by Dr. Levy is one of special interest as showing the relations between intermittent claudication and its allies, Raynaud's disease and erythromelalgia. It is as follows. A man, aged 33 years, a Russian subject, had malaria when he was 14 years of age. He suffered from whitlows on the fingers of his right hand at the ages of 14, 16, and 24 years respectively. At the age of 20 years he joined the army and had to undergo much hardship and exposure. At 25 years of age he emigrated to the United States and followed the occupation of a pack-pedlar. For several years he consumed about three ounces of whisky daily and smoked about four ounces of tobacco weekly. In the autumn of 1898 he suffered from pain in the right hip and over the sciatic nerve which grew worse at night. Later the pain spread to the knee and heel, first one knee and then the other being affected. In the spring of 1900 sharp pains developed in the big toe and cramps in the calf of the left leg. There was much difficulty in walking, for cramps came on after taking a few steps, stopping when he rested and recurring when he started to walk again. The right foot eventually became swollen and discolourations appeared about the heel and toes in the form of bluish spots. The skin in the affected areas was exquisitely sensitive and tender to pain and pressure. He also suffered from insomnia and had to remain in bed, being unable to walk. The foot was cold and dry and the bluish painful areas closely resembled those observed in Raynaud's disease. The muscles of the calves and thigh were wasted, especially on the right side. Pulsation was absent in the posterior tibial and dorsalis pedis arteries on both sides. He was treated with morphia (three grains daily) to relieve the pain, while bromides and iodides were given internally and massage and electricity were applied locally. The disease, however, progressed and gangrene followed in the fourth toe and big toe successively, a condition very like that in erythromelalgia. The gangrene spread upwards and amputation above the knee was subsequently performed. He appeared better for a while after this but the disease continued to progress in the other leg. Microscopic examination showed marked arterio-sclerosis in the tibial and pedal arteries of the amputated limb. Dr. Levy states that the most constant pathological findings in the few cases known were endarteritis and sclerosis of the smaller peripheral arteries with little or no neuritis.

[1] Intermittent Claudication, THE LANCET, June 22nd, 1901, p. 1773.

THE NEW REGULATIONS FOR ADMISSION TO THE ROYAL ARMY MEDICAL CORPS.

ON p. 1339 will be found the text of the new regulations for admission to the Royal Army Medical Corps. They must, of course, be read in connexion with the recently published Royal Warrant for the Army Medical Service, the text of which was published in our issue of March 29th, p. 912. The new regulations both for admission to the Royal Army Medical Corps and for promotion when once admitted—for despite their title the regulations do not deal solely with admission—are obviously designed to attract the best class of man, and we hope for the sake of the service that this result will follow. The entrance examination is, it will be seen, of a thoroughly practical nature and one which any medical man who is duly qualified and who has attended diligently and with common-sense to five years' hospital practice should have no difficulty in passing. As, of course, it is a competitive examination the standard of knowledge required for admission to the service may vary a little from time to time, but it will never fall below a fairly high one. The examination before promotion to major, to be taken at any time after completing five years' service, is a purely professional one, for the surmounting of which it will be necessary for the candidate to keep his knowledge of medicine, surgery, hygiene, and bacteriology from getting rusty, while a good list of optional subjects will enable him to secure consideration for any special work that he may have done.

"THE CASE OF AN ELECTION."

IN our issue of April 6th, 1901, p. 1044, we published a letter from Dr. J. A. Shaw-Mackenzie detailing the somewhat extraordinary circumstances of his election to, and dismissal from, the post of physician to out-patients at the Samaritan Free Hospital for Women and Children. The facts are these: In September, 1900, the vacancy in the post of physician to out-patients was advertised, without any notification that the appointment when made would have to be confirmed. On Nov. 14th, 1900, the secretary wrote to Dr. Shaw-Mackenzie informing him that he had been elected. A like intimation was sent to the editors of the Medical Directory. Nothing was said about the appointment being provisional. Dr. Shaw-Mackenzie did the work of the post for a month, when he received an intimation from the secretary of the medical committee that the election was not confirmed and therefore that he need not attend as out-patient physician. On Dec. 21st the secretary of the hospital wrote to Dr. Shaw-Mackenzie that the election not being

confirmed the post was vacant. On Jan. 23rd, 1901, he wrote that matters reverted to the *status* of Oct. 23rd, 1900, the date at which the report of the medical committee on the candidates was sent in. Eventually another medical man was appointed in place of Dr. Shaw-Mackenzie and the latter gentleman has now received the following letter:—

Samaritan Free Hospital for Women and Children,
Marylebone-road, N.W., April 16th, 1902.

DEAR SIR,—The Committee of Management of the Samaritan Free Hospital understand that some misapprehension has arisen as to the circumstances attending your provisional appointment as honorary physician to the hospital and the subsequent election of another candidate. The committee willingly state that your non-election, permanently, was not attributable to any fault or shortcoming on your part. You gave your valuable services to the hospital for some weeks and the committee had no reason whatever for dissatisfaction.

The committee take this opportunity of expressing their regret that the letter to you, and the communication to the Medical Directory notifying your appointment, omitted to state that it was provisional only.

I am, dear Sir, yours faithfully,
W. GUNTRIP KING, Secretary.

To J. A. Shaw-Mackenzie, Esq., M.D., &c.,
31, Grosvenor-street, W.

We are glad to see that "the committee take this opportunity," &c., but it seems odd they should have allowed 14 months to elapse before doing so.

THE HEREDITY OF POETIC TALENT.

IN a discussion opened at the Société Médico-Psychologique of Paris and reported in the *Archives de Neurologie* for April Dr. P. Chaslin referred to the subject of the heredity of poetic talent, basing his remarks chiefly on a recent publication by Dr. Möbius which dealt exhaustively with the same topic. Dr. Chaslin and Dr. Möbius arrived at the following conclusions: first, that great poetic talents were solitary and exceptional, even amongst persons exhibiting a taste or aptitude for poetry; secondly, that the mother of a poet was always an intellectually gifted woman, whereas the son of a stupid woman was always stupid; and, thirdly, that poetic talent was hereditary and was transmitted through the mother alone. Dr. Chaslin cites numerous instances in support of these conclusions. It is not often that a great poet has left behind him reflections or observations bearing upon the origin of his special talent, but in this connexion we can cite the well-known instance of Goethe who made the confession that he inherited from his father his stature and seriousness but from his mother "a joyous nature and a turn for poetising."

ON THE EARLY SYMPTOMS AND DIAGNOSIS OF TABES DORSALIS.

AN interesting paper based on careful observation and study of 54 cases of tabes dorsalis, with special reference to early symptoms and diagnosis, is contributed by Dr. D. Fulton to the *Journal of Nervous and Mental Disease* for April last. Dr. Fulton emphasises the importance of differential diagnosis from early general paralysis, a procedure which is by no means easy. Paræsthesiæ about the limbs and body were often the first symptoms in tabes dorsalis and they were observed in the early stages of the disease in 70 per cent. of cases. In six cases difficulty in micturition was the first symptom and in four cases double vision was the initial symptom. Among the earliest symptoms of general paralysis, and antecedent to indications of insanity, there might be found loss of knee-jerk, Argyll-Robertson pupil, "lightning pains," incoördination, and weakness of the bladder, so that differentiation in these respects from tabes was impossible. If, however, the characteristic clumsiness of speech and tremor of the tongue and lower facial muscles were present, general paralysis might be diagnosed to the exclusion of tabes. In reviewing the 54 cases it was surprising, says Dr. Fulton, to note that a large proportion of patients (85 per cent.) gave a definite history of gastro-intestinal disturbance, such as "army diarrhœa," gastric and intestinal catarrh, chronic gastritis, chronic constipation, gastroptosis and enteroptosis, and chronic liver troubles, these having preceded the tabes by periods of time ranging from a few months to a few years. He thought that some obscure toxæmia of gastro-intestinal origin, combined with syphilis, constituted the exciting cause of tabes. Of the patients 52 were males and two were females. Hereditary influences were rare; 54 per cent. of the cases gave histories of alcoholism or excessive smoking, 42 per cent. were obviously syphilitic, 11 per cent. had followed influenza, and in 4 per cent. the tabes had followed very shortly after typhoid fever, more than one cause being observed in the majority of cases. The general symptoms and their frequency were as follows: loss of knee-jerks in 88 per cent. of the cases, Romberg's symptom (static ataxia) in 80 per cent., ataxic gait in 77 per cent., lightning pains in 73 per cent., paræsthesiæ in 70 per cent., Argyll-Robertson pupil in 67 per cent., incoördination in 65 per cent., vesical disturbances in 60 per cent., ocular paralyses in 27 per cent., and sexual weakness in 25 per cent. Other symptoms were less frequent. Treatment included extension, rest in bed with massage and passive movements, and, above all, hydrotherapy and systematic graduated exercises for the muscles so as to regain the power of coördination.

WHAT'S IN A NAME?

THE medical superintendent of one of the county asylums has had the courage to christen the institution of which he is the official head by a name suggestive of a residential estate with ancestral antecedents, thus discarding the old title of "asylum" with all its objectionable associations. There is much to be said in favour of this stroke of policy, and, indeed, the arguments against it are almost entirely of a technical nature. If the rich person who has to be confined under certificates can be lodged in a "park," "villa," or "moorings," why may not the poor man whose local habitation is paid for out of the rates be domiciled under a name with artistic associations? The law is not given to sentimentalism and it speaks in cold, brutal terms of institutions for the insane as "asylums, hospitals, or licensed houses." If, then, a "licensed house" may be generally known as "Dottyville," and so spoken of by the Lunacy Commissioners in their report to the Lord Chancellor, why may not the county asylum be known as "Muddleport"? There is plenty of scope for imagination in the new departure opened up by this enterprising superintendent; we would, however, suggest that the new styles should not be of too connotative a character, but that they should be rather colourless in kind, so that neither may the melancholy patients be made more depressed by the dismal name of their abode nor the general paralytics unduly elated by the "castle" that they have at last found. It has always been a sore point with the chief officers of asylums (and their wives) that they should be spoken of in the neighbourhood as "the asylum people" and that their residences should be part and parcel of the establishment and their letters so addressed that they very often fall into the hands of patients who happen to carry a similar name, and it is not to be wondered at that strenuous efforts are usually made to dissociate the quarters of the medical staff from the main structure and to give names which are bewildering to the postman, but there is now an example in actual existence where the hated word "asylum" disappears once and for all and life may be enjoyed in the most socially approved surroundings. Seriously speaking, there is much to be said for this bold stroke, and if it does eventually relieve people from the prejudices which do undoubtedly, though often wrongfully, militate against the future of those who have

had to spend some time in an asylum, the originator may be congratulated upon having initiated an advance.

THE DISTRIBUTION OF PLAGUE.

THE following shows the distribution of plague throughout Egypt during the week ending April 27th: Mit-Ghamr, 1 case and no deaths; Mit-Samanoud, 3 cases and no deaths; Dechneh, 3 cases and 2 deaths; Tala, 3 cases and 4 deaths; Tantah, 4 cases and 2 deaths; and Maghaga, 4 cases and no deaths. An outbreak of the disease has occurred among Bedouins living near the town of Maghaga (Upper Egypt). The first case traced was a Bedouin woman who left Korachieh in March.

SANITARY WORKS AT BUCKINGHAM PALACE.

THE drainage and other sanitary arrangements which were carried out at Buckingham Palace by the officials of His Majesty's Office of Works a few years ago have been thoroughly inspected and tested by Dr. W. H. Corfield, the consulting sanitary adviser to His Majesty's Office of Works, who has reported "that the drainage arrangements have been very well planned and carried out and reflect credit on all concerned with them." He has, however, suggested a number of improvements in the sanitary arrangements generally, the most important of which have been carried out already under his supervision and to his satisfaction. The remainder, which consist chiefly of certain re-arrangements, will be carried out in the autumn.

THE METROPOLITAN WATER-SUPPLY.

THE report on the condition of the metropolitan water-supply during the month of March, 1902, has recently been issued by the Water Examiner. The Thames water was in good condition at Hampton, Molesey, and Sunbury from the 5th to the 16th and from the 19th to the 31st day of the month. On the 17th the engineer to the Chelsea Waterworks Company described the state of the river water as bad. The height of the river varied from three inches above to seven inches below the average summer level. The average daily supply delivered during the month was as follows: from the Thames, 111,171,611 gallons; from the Lee, 52,772,200 gallons; and from springs and wells, 36,001,249 gallons. The proportions of brown tint observed in a two-foot tube ranged from 5° to 24° of the standard in use. The water of the Lambeth Company exhibited the deepest average tint of brown and a sample of water drawn from the mains of that company was found (by Dr. T. E. Thorpe, F.R.S., the Government analyst) to contain a higher proportion of organic carbon than that found in any other sample of London water examined during the month. Dr. Thorpe examined 11 samples of the water supplied by each company during the period under review. Samples collected on March 17th were fully analysed. The most important results of this examination are given in the appended table showing the results of the analysis expressed in parts per 100,000.

Company.	Organic carbon.	Organic nitrogen.	Nitrogen as nitrates and nitrites.	Total combined nitrogen.
Chelsea	0·203	0·017	0·270	0·287
West Middlesex ...	0·205	0·013	0·260	0·287
Southwark	0·184	0·020	0·228	0·248
Grand Junction ...	0·246	0·023	0·259	0·282
Lambeth	0·249	0·021	0·271	0·292
New River	0·082	0·008	0·222	0·230
East London	0·236	0·019	0·445	0·464
Kent	0·041	0·006	0·466	0·472

THE PREVALENCE OF SMALL-POX.

THE returns of small-pox in London for the past week show the following figures. On Saturday, May 3rd, there were 38 fresh cases notified and removed; on Sunday, the 4th, there were 44 fresh cases; on Monday, the 5th, there were 40 fresh cases; on Tuesday, the 6th, there were 35 fresh cases; and on Wednesday, the 7th, there were 17 fresh cases. In the county of Essex for the week ending May 3rd there were notified 63 cases, making a total from Jan. 1st of 953 cases throughout the county. During the month of April 183 cases were notified in the Essex urban districts and 63 cases in the Essex rural districts.

AT a meeting of the Grand Lodge of English Freemasons held at Freemasons' Hall on Wednesday, April 30th, amongst the Grand Officers appointed for the ensuing year by the M. W. Grand Master, H.R.H. the Duke of Connaught, were W. Bro. A. E. Sansom, M.D., F.R.C.P. Lond., W. M. of the London Hospital Lodge, and W. Bro. Thomas Wakley, jun., L.R.C.P. Lond., W. M. of the Cheselden Lodge (St. Thomas's Hospital), who were appointed respectively to the offices of Senior Grand Deacon and Junior Grand Deacon.

THE annual dinner of the Indian Medical Service will take place at the Café Monico, Piccadilly-circus, on Thursday, June 12th, at 7.45 P.M., when the chair will be occupied by Dr. William S. Playfair. Officers intending to be present at the dinner should communicate without delay to the honorary secretary, Mr. P. J. Freyer, 46, Harley-street, London, W.

THE annual dinner of the Chelsea Clinical Society will be held in the Princes Room, Criterion Restaurant, on Thursday, May 22nd, at 7.45 for 8 P.M. Communications should be made to the honorary secretary, Dr. A. E. Cooper, 104, Buckingham Palace-road, London, S.W., not later than Thursday, May 15th.

THE ninth "Robert Boyle" Lecture of the Oxford University Junior Scientific Club will be delivered in the hall of Balliol College, Oxford, on May 13th, at 9 P.M., by Professor T. Clifford Allbutt of Cambridge, the subject being "The Growth of the Experimental Method in Oxford."

His Excellency the High Commissioner for South Africa has appointed Dr. Henry Shinglewood Taylor, Justice of the Peace, to be the commissioner for receiving the oath of allegiance to His Majesty King Edward VII. for the district of Ficksburg, Orange River Colony.

THE Committee of University College Hospital have decided not to hold this year the usual festival dinner in aid of the funds of the charity. They are, however, compelled to issue a special appeal for funds, the hospital owing a debt of over £9000.

THE forty-second annual dinner of King's College, London, will be held at the Monico Restaurant on Monday, June 16th, with the Bishop of London in the chair.

DR. J. E. WOLFHAGEN has been appointed Consul for Germany at Hobart, Tasmania.

WINDOW-WASHING APPARATUS.—An American inventor has patented a method of cleaning windows; it seems to consist of bars attached to the sides of the sash and a mechanical contrivance for causing a "window brush or cleaner" to travel over the surface of the glass. An engraving and the specification will be found in the *Official Gazette* of the United States Patent Office issued on April 22nd, 1902.

THE ROYAL ARMY MEDICAL CORPS.

THE following is the text of the new regulations for admission to the Royal Army Medical Corps.

[*Promulgated by Army Orders dated 1st May, 1902.*]

REGULATIONS FOR ADMISSION TO THE ROYAL ARMY MEDICAL CORPS, 1902.

CANDIDATES FOR COMMISSIONS.

QUALIFICATIONS.

1. A candidate for a commission in the Royal Army Medical Corps must be 21 years and not over 28 years of age at the date of the commencement of the entrance examination.

2. He must possess, under the Medical Acts in force in the United Kingdom at the time of his appointment, a registrable qualification to practise.

3. He must complete the form of application and declaration shown in Appendix I., and submit it to the Director-General, Army Medical Service, in sufficient time to permit of reference to the medical school in which the candidate completed his course as a medical student.

4. The Dean, or other responsible authority, of such school will be requested by the Director-General to render a confidential report as to his character, conduct, professional ability and fitness to hold a commission in the corps, and to this report special importance will be attached.

5. After the form of application and the confidential report above alluded to have been received, the Director-General will decide if he may be allowed to compete for a commission in the Royal Army Medical Corps.

6. If approved, he will then be examined as to his physical fitness by a board of medical officers in accordance with Appendix II.

7. If the candidate is pronounced to be physically fit for service at home and abroad, he will be eligible to present himself at the entrance examination, which will be held twice in the year, usually in January and July, for the admission of qualified candidates as lieutenants on probation.

8. The Secretary of State reserves the right of rejecting any candidate who may show a deficiency in his general education.

9. An entrance fee of £1 is required from each candidate admitted to the examination and is payable at the conclusion of his physical examination if pronounced fit.

10. Officers who have served with the Royal Army Medical Corps (Militia) when embodied, or who as officers of the Royal Army Medical Corps (Militia) or Royal Army Medical Corps (Volunteers), medical officers of yeomanry or volunteers, or as civil surgeons served with an army in the field, after the 1st October, 1899, may be allowed to reckon such service towards retired pay and gratuity. [*Secretary of State's Instructions on Pay Warrant.*]

Candidates in any of these classes may be permitted to compete under the above rules provided they were not over 28 years of age at the beginning of their last period of service and shall be allotted special marks for such service on a scale approved by the Secretary of State. The duration of service is to be reckoned from the date on which the candidate commenced such service, except in the case of candidates who have served for two or more periods at short intervals. In such cases the total period of service to be considered in granting marks at the entrance examination shall be specially determined.

APPOINTMENTS, &c.

11. A candidate successful at the entrance examination will be appointed a lieutenant on probation, and will be required to pass through such courses of instruction as the Secretary of State shall decide, and after passing the examinations in the subjects taught, and satisfying the Director-General that he possesses the necessary skill, knowledge, and character for permanent appointment to the Royal Army Medical Corps, his commission as lieutenant will be confirmed. The commission shall bear the date of the officer's appointment as lieutenant on probation.

12. Before the commission of a lieutenant on probation is confirmed he must be registered under the Medical Acts in force in the United Kingdom at the time of his appointment.

13. The precedence of lieutenants among each other shall be in order of merit as determined by the combined results of the entrance examination and the examinations undergone while on probation, except that the position on the list of a lieutenant on probation seconded under Article 349 Royal Warrant shall be determined by the place he has gained at the entrance examination. In the case of a lieutenant so seconded the subsequent examinations referred to in paragraphs 18 and 19 will be of a qualifying character and will not influence his position on the seniority list of the corps.

14. Lieutenants when appointed on probation will receive instructions as to the provision of uniform.

EXAMINATIONS.

SUBJECTS FOR THE ENTRANCE EXAMINATION.

15. Candidates will be examined by the examining board in medicine and surgery. The examination will be of a clinical and practical character, partly written and partly oral, marks being allotted under the following scheme:—

Medicine (written).

	Maximum marks.
A. Examination and report upon a medical case in the wards of a hospital	125
B. Commentary upon a case in medicine	125
(Three hours allowed for A and B together.)	

Medicine (oral)

A. Clinical cases; clinical pathology	75
B. Morbid Anatomy and Morbid Histology	75
(One quarter of an hour allowed for each table.)	

Surgery (written).

A. Examination and report upon a surgical case in the wards of a hospital	125
B. Commentary upon a case in surgery	125
(Three hours allowed for A and B together.)	

Surgery (oral).

A. Clinical cases, including diseases of the eye; surgical instruments and appliances	75
(One quarter of an hour allowed for this table.)	
B. Operative surgery and surgical anatomy	75
Total marks	800

The following headings are published as a guide to candidates in drawing up their reports on cases:—

(*a*) A brief history of the case as given by the patient, including such points only (if any) in the family or personal history as have a distinct bearing upon the present illness or incapacity.

(*b*) A detailed account of the subjective symptoms and physical signs elicited by the candidate's personal examination of the patient, noting the absence of any which might be expected to be present in a similar case.

(*c*) Where there is any reasonable doubt in the mind of the candidate as to an exact diagnosis, he is to give the alternatives, with his reasons for making the selection.

(*d*) A commentary upon the case as a whole, pointing out the symptoms which may be considered typical and those which appear to be unusual or only accidental complications.

(*e*) Suggestions as to treatment, both immediate and possibly necessary at a later date.

(*f*) A forecast of the progress and probable termination of the case.

Similarly the commentary on the report of a case submitted to the candidate should discuss:—

(*a*) The family and personal history and other conditions preceding the development of the condition described.

(*b*) The relative significance of the physical signs, symptoms, other indications of disease noted, and the general clinical aspects of the case.

(*c*) The diagnosis, with reasons for selection of the most probable, when a positive diagnosis cannot be attained.

(*d*) The treatment, dietetic, medicinal, operative, &c., including a criticism of the plan adopted, and alternative schemes of treatment in cases of disagreement.

(*e*) The morbid appearances, and an account of the *post-mortem* examination (if any).

16. The examination will be held in London, and will occupy about four days.

17. The appointments announced for competition will be filled up from the list of qualified candidates arranged in the order of merit, as determined by the total number of marks each has obtained.

18. Having gained a place in this entrance examination, the successful candidates will undergo two months' instruction in hygiene and bacteriology, after which they will be examined in these subjects. The maximum number of marks obtainable at this examination will be 100

19. On completion of the above course lieutenants on probation will be ordered to proceed to the depôt of the Royal Army Medical Corps at Aldershot for a three months' course of instruction in the technical duties of the corps, and at the end of the course will be examined in the subjects taught. The maximum number of marks obtainable at this examination will be 100.

20. A lieutenant on probation who fails to qualify in either of these examinations will be allowed a second trial and should he qualify will be placed at the bottom of the list. Should he again fail in either examination his commission will not be confirmed.

REGULATIONS FOR THE EXAMINATION FOR PROMOTION IN THE ROYAL ARMY MEDICAL CORPS.

21. These examinations are intended to test the progress and proficiency of officers in those branches of knowledge which are essential to their continued efficiency.

Lieutenant before Promotion to Captain.

(For Lieutenants appointed after March 31st, 1901.)

22. This examination may be taken at any time after completing 18 months' service and will be held in the military district in which the officer is serving.

The subjects of this examination, which are detailed in the King's Regulations, are as follows:—

1. Regimental duties.
2. Drill.
3. Military law.
4. Duties and accounts connected with military hospitals and their supplies.
5. Other duties of executive medical officers.

Captains before Promotion to Major.

(For captains promoted to that rank after July 27th, 1895.)

23. Captains will be examined under the rules laid down in Paragraph 34, and will be eligible for acceleration in their promotion to the rank of major under Article 352 of the Royal Warrant, subject to the following restrictions:—

(*a*) The acceleration which can be gained by a captain promoted to that rank in January, 1896, will be limited to six months, and an officer gaining this acceleration will take precedence after the last captain promoted major on completion of twelve years' service.

(*b*) The acceleration which can be gained by a captain promoted to that rank in July, 1896, will similarly be limited to twelve months, and an officer gaining this acceleration will take precedence next after the last captain promoted to that rank in January, 1896, who may have gained six months' service.

(*c*) A captain promoted to that rank in January, 1897, can gain the full acceleration, but will take precedence after any captain promoted to that rank in July, 1896, who may have gained 12 months' acceleration.

(*d*) Officers gaining acceleration under (*a*) will take precedence *inter se* in order as they have obtained a special certificate or passed

in the first, second, or third class, and a similar course will be followed under (*b*) and (*c*).

(*c*) In all other cases an officer who gains accelerated promotion will be placed for precedence after the last officer (whether subject to acceleration or not) promoted approximately, three, six, 12, or 18 months before him.

24. This examination, which may be taken at any time after completing five years' service, will be held in London on the termination of a period of special study. The examination will consist of written papers, essays, oral and practical examinations in the following subjects, which are detailed in the King's Regulations:—

1. Medicine.
2. Surgery.
3. Hygiene.
4. Bacteriology and tropical diseases.
5. One special subject from the subjoined list, to which additions may from time to time be made:—(*a*) Bacteriology, including the preparation of antitoxins; (*b*) dental surgery; (*c*) dermatology; (*d*) laryngology; (*e*) midwifery and gynæcology; (*f*) operative surgery, advanced; (*g*) ophthalmology; (*h*) otology; (*i*) pædiatrics (*k*) psychological medicine; (*l*) skiagraphy; (*m*) specific fevers.

25. Captains serving in that rank before July 27th, 1895, will be promoted under the old regulations contained in Appendix I., Regulations for Army Medical Services, and will not be eligible for acceleration.

Majors before Promotion to Lieutenant-Colonel.

(For majors promoted to the rank after March 31st, 1895.)

26. This examination, which may be taken at any time after three years in the rank of major, will be held in the military district in which the officer is serving at times which will be duly notified.

The subjects of this examination, which are detailed in the King's Regulations, are as follows:—

1. Military law.
2. Army medical organisation.
3. Sanitation of towns, camps, transports, &c.
4. Epidemiology and the management of epidemics.
5. One special subject from the subjoined list to which additions may from time to time be made:—
   (*a*) Medical history of important campaigns.
   (*b*) A general knowledge of the army medical services of other Powers.
   (*c*) The laws and customs of war in relation to the sick and wounded.

APPENDIX I.

APPLICATION OF A CANDIDATE FOR A COMMISSION IN THE ROYAL ARMY MEDICAL CORPS.

1. Name in full.
2. Address.
3. Date of birth.

(A certificate of registration of birth or other satisfactory evidence of age, such as a declaration made before a magistrate by one of his parents or guardians giving the date of his birth to be furnished.)

4. Registrable qualifications.

(A reference to be given to the Medical Register, or, in the absence of such reference, other satisfactory evidence to be furnished.)

5. Academic and other distinctions.
6. Name of the Dean or other responsible authority of the school in which the candidate completed his course as a medical student.
7. Particulars of any commission or appointment held in the public services.
8. Date of examination at which the candidate proposes to present himself.

DECLARATION.

(N.B.—A mis-statement by the candidate will invalidate any subsequent appointment and cause forfeiture of all privileges for services rendered.)

I hereby declare upon my honour that the above statements are true to the best of my knowledge and belief, and that I am a British subject of unmixed European blood.

(Signed)

A candidate whose application is regarded as satisfactory will be directed to appear before the Director-General, Army Medical Service, usually on the fourth Thursday of the month preceding his examination. If allowed to compete he will be required, a few days before the examination, to present himself before a medical board to be certified as to physical fitness. He will be informed in due course of the time and place at which such board will be assembled.

All communications to be addressed to the Director-General, Army Medical Service, 18, Victoria-street, London, S.W.

REVISED CLASSIFICATION OF CAUSES OF DEATH IN THE NATIONAL RECORDS.

IN THE LANCET of April 26th, p. 1196, we briefly acknowledged our indebtedness to the Registrar-General for a copy of the new official list of causes of death which was adopted at the beginning of the present century for the abstraction of deaths in England and Wales. Except for a few unimportant modifications the classification which has now been superseded is identical with that which had been in use at the General Register Office ever since its establishment in 1837. It was compiled by the late Dr. William Farr, F.R.S., shortly after his appointment to the office which he made illustrious throughout his long period of faithful service. And although we can readily believe that the classification which it embodied requires modification at the present time it is beyond question that in earlier years at any rate Dr. Farr's classification effected substantial improvement in the records of mortality not only in this country but in most other parts of the civilised world.

The new list of causes of death which we print *in extenso* is obviously the work of Dr. John Tatham who, as a member of the committee of the Royal College of Physicians of London which prepared the last edition of the Nomenclature of Diseases, is presumably familiar with the views of his professional colleagues at Pall Mall on the subject of classification. And, further, we believe, from the great interest which he has always shown in the progress of State Medicine and especially in the science of Vital Statistics, that any serious departure from the methods of his distinguished predecessor would have been decided upon by Dr. Tatham only after the most painstaking and mature reflection.

Although, as we mentioned in our issue of April 26th, the time-honoured grouping of diseases by Dr. Farr under the titles "Zymotic," "Constitutional," "Developmental," &c., will be missed in the new list, nevertheless, inasmuch as the names of groups only, not the names of diseases themselves, have been discontinued, it will be found on examination that the instances are few and unimportant in which the records of future years cannot readily be compared with those of the past.

Attached to the new list of causes of death are a few appropriate suggestions for its use. We commend these to the careful perusal of our medical brethren who will find them helpful in regard to the certification of cause of death. We are glad to note that copies both of the new official list of causes of death and of the suggestions referred to will be included in all future books of certificate forms issued from the General Register Office. Consequently these documents will be at hand just when they are most useful to the medical practitioner—namely, at the very time of filling up his certificates.

We are gratified to find on inquiry that the new list of causes of death has been adopted by the Registrars-General for Ireland and Scotland, so that uniform official statistics of mortality will henceforth be published for the three divisions of the United Kingdom.

NEW LIST OF CAUSES OF DEATH

AS USED IN THE ANNUAL REPORTS OF THE REGISTRAR-GENERAL FOR ENGLAND AND WALES.

N.B.—The terms printed in *italics* being the names of symptoms merely, or being otherwise objectionable, should be used in medical certificates only when precise information is wanting.

GENERAL DISEASES.

Small-pox { Vaccinated. / Not Vaccinated. / Doubtful.
Cow-pox. Effects of Vaccination.
Chicken-pox.
Measles.
Epidemic Rose Rash, German Measles.
Scarlet Fever.
Typhus.
Plague.
Relapsing Fever.
Influenza.
Whooping-cough.
Mumps.
Diphtheria, Membranous Croup.
Cerebro-spinal Fever.
Simple Continued Fever.
Enteric Fever.

Asiatic Cholera.
Epidemic Diarrhœa, Epid. or Zym. Enteritis.
Diarrhœa, Choleraic Diarrhœa.
Dysentery.

Malarial Fever.
Hydrophobia.
Glanders, Farcy.
Anthrax, Splenic Fever.
Tetanus.
Syphilis.
Gonorrhœa, Stricture of Urethra.

Puerperal Septicæmia, Sapræmia.
Puerperal Pyæmia.
Puerperal Phlegmasia Dolens.
Puerperal Fever.
Infective Endocarditis.
Epidemic Pneumonia, Pneumonic Fever.
Erysipelas.
Septicæmia (not Puerperal).
Pyæmia (not Puerperal).
Phlegmon, Carbuncle (not Anthrax)
Phagedæna.

Other Septic Diseases.

Tuberculous Phthisis (Pulm. Tuberculosis).
"*Phthisis.*"
Tuberculous Meningitis.
Tuberculous Peritonitis.
Tabes Mesenterica.
Lupus.
Tubercle of other Organs.
General Tuberculosis.
Scrofula.

Parasitic Diseases.
Starvation.
Scurvy.
Alcoholism, Delirium Tremens.
Opium, Morphia Habit.
Ptomaine Poisoning.

Industrial Poisoning { by Lead. / by Phosphorus. / by Arsenic and other Metals.
Rheumatic Fever, Acute Rheumatism.
Rheumatism of Heart.
Chronic Rheumatism.
Rheumatic Arthritis, Rheumatic Gout.
Gout.

Carcinoma.
Sarcoma.
Malig. Dis., Cancer.

Rickets.
Purpura.
Hæmophilia, Hæmorrhagic Diathesis.
Anæmia, Leucocythæmia.
Diabetes Mellitus.
Premature Birth.
Congenital Defects.
Injury at Birth.
Atelectasis.
Want of Breast Milk.
Teething.

LOCAL DISEASES.

DISEASES OF NERVOUS SYSTEM.

Meningitis, Inflammation of Brain.
Softening of Brain.
General Paralysis of Insane.
Insanity (not Puerperal).
Chorea.
Epilepsy.
Convulsions.
Laryngismus Stridulus.
Locomotor Ataxy.
Paraplegia and Disease of Cord.
Neuritis, Periph. Poly-Neuritis.
Brain Tumour (not specific).
Nervous System, other Diseases.

DISEASES OF ORGANS OF SPECIAL SENSE.

Otitis, Mastoid Disease.
Epistaxis, Nose Disease.
Ophthalmia, Eye Disease.

DISEASES OF HEART AND BLOOD-VESSELS.

Valve Dis., Endocarditis (not Infective).
Pericarditis.
Hypertrophy of Heart.
Angina Pectoris.
Dilatation of Heart.
Fatty Degeneration of Heart.
Syncope, Heart Disease (not specified).
Cerebral Hæmorrhage, Emb., Thrombosis.
Apoplexy, Hemiplegia.
Aneurysm.
Senile Gangrene.
Embolism, Thrombosis (not Cerebral).
Phlebitis.
Varicose Veins.
Blood Vessels, other Diseases.

DISEASES OF RESPIRATORY ORGANS.

Laryngitis.
Membranous Laryngitis (not Diphtheritic).
Croup (not Spasmod. or Membr.).
Larynx, other Diseases (not specified).
Bronchitis.
Lobar, Croupous Pneumonia.
Broncho, Catarrhal, Lobular Pneumonia.
Pneumonia.
Emphysema, Asthma.
Pleurisy.
Fibroid Disease of Lung.
Respiratory Diseases, other.

DISEASES OF DIGESTIVE SYSTEM.

Tonsillitis, Quinsy.
Mouth, Pharynx, Disease (not specific).
Gastric Ulcer.
Gastric Catarrh.
Stomach, other Diseases (not Malig.).
Enteritis (not Epidemic).
Gastro-enteritis.
Appendicitis, Perityphlitis.
Hernia.
Intestinal Obstruction.
Other Diseases of Intestines.
Peritonitis (not Puerperal).
Cirrhosis of Liver.
Liver and Gall Bladder, other Diseases.
Digestive System, other Diseases.

DISEASES OF LYMPHATICS.

Spleen Disease.
Lymph. System, other Diseases.
Thyroid Body, Disease.
Supra-renal Capsules, Disease.

DISEASES OF URINARY AND GENERATIVE ORGANS.

Nephritis, Acute.
Chronic Bright's Disease, Albuminuria.
Calculus (not Biliary).
Bladder and Prostate, Disease.
Urinary System, other Diseases.
Ovarian Tumour (not Malig.).
Other Diseases of the Ovary.
Uterine Tumour (not Malig.).
Other Diseases of Uterus and Vagina.
Disorders of Menstruation.
Gener. and Mam. Orgs., other Diseases.

ACCIDENTS OF CHILDBIRTH.

Abortion, Miscarriage.
Puerperal Mania.
Puerperal Convulsions.
Placenta Prævia, Flooding.
Other Accid. of Pregnancy and Childbirth.

DISEASES OF JOINTS.

Caries, Necrosis.
Arthritis, Periostitis.
Other Diseases of Locomotor System.

DISEASES OF SKIN.

Ulcer, Bedsore.
Eczema.
Pemphigus
Skin Diseases, other.

SUGGESTIONS TO MEDICAL PRACTITIONERS RESPECTING CERTIFICATES OF DEATH.

It is highly desirable that medical practitioners should use in their certificates of death only those terms which are recognised by the Royal College of Physicians.

The list of diseases now used in the Registrar-General's Reports is condensed from the nomenclature of the Royal College of Physicians, with the addition of certain unofficial terms which are still in common use but which are objectionable either as being the names of symptoms merely or as being otherwise indefinite. In the copy of the list here given these objectionable terms are printed in *italics*, and it is hoped that medical practitioners will use them only when accurate information is wanting.

1. The cause of death should be stated precisely and briefly, English names for diseases being used in preference to their equivalents in other languages. Vague terms such as *decline, consumption, tabes, cachexia, &c.*, should be avoided, and *hæmorrhage* should not be assigned as the cause of death without indication of its origin and probable cause. *Dropsy* should never be returned as the cause of death without particulars as to its probable origin—e.g., in disease of the heart, liver, kidneys, &c.

2. SMALL-POX.—In certifying deaths from small-pox the patient's condition with respect to vaccination should be carefully stated—say, in one or other of the following forms:—(1) No evidence of vaccination. (2) Vaccinated in infancy only—Number of scars. (3) Vaccinated only after infection from small-pox. (4) Stated to have been vaccinated but no scars. [If the patient has been revaccinated, the date should be given when possible.]

3. PUERPERAL FEVER AND OTHER SEPTIC DISEASES.—The term "*puerperal fever*" should no longer be used. Pyæmia, septicæmia, or sapræmia occurring in puerperal women should be described as puerperal pyæmia, puerperal septicæmia, or puerperal sapræmia respectively (Nomen. R.C.P., p. 11). In the new list of diseases provision exists for the separate entry of the several forms of septic infection.

4. DIARRHŒA.—Attention is especially invited to the subjoined decision of the Royal College of Physicians concerning the use of authorised names for this malady dated Jan. 25th, 1900.

"The Royal College of Physicians is convinced, after careful inquiry: (*a*) That various unauthorised and misleading terms, such as '*gastro-enteritis*,' '*muco-enteritis*,' '*gastric catarrh*,' &c., are now commonly employed to designate the disease officially known as '*epidemic diarrhœa*,' whereby its specific character is in danger of being ignored, and great confusion ensues; (*b*) that the present confusion of terms renders it impossible to determine accurately either the prevalence of the disease in special places and at special times, the extent to which it influences the public health, or the effects produced by sanitary measures; (*c*) that there is a widespread objection on the part of medical practitioners to the employment of the term '*diarrhœa*' in certifying the cause of death, probably because that term is generally held by the public to imply a mild disease, insufficient by itself to cause death.

"The College, therefore, has sought to discover as an alternative for the authorised term (epidemic diarrhœa) some other name, which, whilst equally accurate, should convey to the public the idea of a more serious affection. But the College regards it as essential that the idea of specificity, intended to be conveyed by the term 'epidemic,' should be retained.

"As the result of much deliberation, the College has agreed to authorise the use of the term '*epidemic enteritis*' (or if preferred by the practitioner, '*zymotic enteritis*'), as a synonym for epidemic diarrhœa. The College has further decided to urge upon practitioners the entire disuse, in medical certificates of death, of such terms as '*gastro-enteritis*,' '*muco-enteritis*,' or '*gastric catarrh*,' as synonyms of epidemic diarrhœa."

5. MALIGNANT DISEASES.—Among cancerous affections "carcinoma" is now distinguished from "sarcoma." This distinction should be observed wherever possible. A separate line is, however, still retained for those forms of malignant disease the nature of which cannot be specified precisely. The part of the body affected should always be stated in the certificate.

6. TUBERCULOUS DISEASES. "*Phthisis.*"—When this condition is due to tubercle, the term "tuberculous phthisis" or "pulmonary tuberculosis" should be used instead of the ambiguous term *phthisis*, which is sometimes used to designate other besides tuberculous diseases of the lungs. "*Tabes mesenterica.*"—The use of this term to describe tuberculous disease of the peritoneum should be discontinued, as it is frequently used to denote various other wasting diseases which are not tuberculous. "Tuberculous peritonitis" is the better term to employ when the condition is due to tubercle. *Hydrocephalus.*—In certifying deaths thus caused it would be advantageous if those due to tuberculous infection were distinguished from those due to meningitis or to other affections of the brain. "Congenital hydrocephalus" should always be returned as such.

7. CONVULSIONS.—It is hoped that this indefinite term will henceforth be restricted to those cases in which the true cause of convulsions cannot be ascertained. At present more than 11 per cent. of the total deaths of infants under one year old are referred to "*convulsions*" simply.

8. PARALYSIS.—The classification of deaths would be much facilitated if brain paralysis were always distinguished from paraplegia. In certifying deaths from brain paralysis, the terms "*hemiplegia*" and "*apoplexy*," which denote symptoms merely, might usefully be replaced by the names of such definite lesions as "cerebral hæmorrhage," &c., &c.

9. PNEUMONIA.—Three separate forms of acute pneumonia have now been added to the list—viz.: Croupous or lobar pneumonia, broncho, catarrhal, or lobular pneumonia, and epidemic pneumonia, the old line for undefined cases of pneumonia being still retained. The term "*typhoid pneumonia*" should never be employed, as it may mean either enteric fever, with pulmonary complication, on the one hand, or pneumonia, with so-called typhoid symptoms, on the other.

10. CROUP.—It were greatly to be wished that the use of the term "*croup*" to designate non-diphtheric affections of the larynx or trachea should be abandoned. Diphtheritic croup or membranous croup should be returned as such.

11. CHILDBIRTH.—Whenever parturition or miscarriage has occurred within one month before the death of the patient the fact should be certified, even though childbirth may not have contributed to the fatal issue.

12. VIOLENCE.—In every case of death by violence, or by suspected violence, the medical practitioner, in addition to stating the fact in his certificate, should advise the friends of the deceased to inform the coroner forthwith.

13. When the cause of death has been verified by a post-mortem examination the letters P.M. should be added.

HEALTH OF KEYNSHAM RURAL DISTRICT.—Mr. J. C. Heaven, the medical officer of health, in his annual report for 1901 estimates the population at 8295, the area being 21,406 acres. 114 deaths were registered during the year against 120 in 1900, corresponding to a rate of 13·74 per 1000. 173 births were registered, compared with 191 in 1900, equal to 20·85 per 1000 living.

DONATIONS AND BEQUESTS.—By the will of Mr. Thomas James of Aylmer House, Weston-super-Mare, and of Messrs. Stiff and Co., Limited, starch manufacturers, of Bristol, £100 are bequeathed to the Weston-super-Mare Hospital and £50 to the Weston-super-Mare Convalescent Home for Children.—The late Mrs. Stephen Wilson of North Kinmundy has bequeathed £1000 to the Royal Hospital for Sick Children, Aberdeen, for the endowment of a cot to be named the "Stephen Wilson Memorial Cot."—The Court of Directors of the Bank of England have granted a donation of £100 to the funds of the Middlesex Hospital in response to the appeal which the governors made for the sum of £70,000.—By the will of Miss Eleanor Agnes Carr £200 are bequeathed to the Alnwick Infirmary.—Captain John Borlase Tibbits by his will has bequeathed £100 to the Northampton Infirmary.

TESTS OF DOMESTIC OPEN FIRE-GRATES.

WE publish below the account of a preliminary investigation into the subject of open sitting-room fire-grates, which has been undertaken at the instance of the Coal Smoke Abatement Society by Dr. H. A. Des Vœux and the late Mr. Bryan Donkin, C.E. The medical and sanitary world have had, since the writing of the report, to regret the death of Mr. Donkin, whose practical and scientific experience in this and allied subjects was probably greater than that of any other observer in the kingdom.

When in 1899 the Coal Smoke Abatement Society was formed to grapple with the problem of the pollution of the air of London with smoke, it soon found itself engaged in a conflict with an enemy which had remained supreme for over 500 years. On the first introduction of coal into London there was some opposition to its use in the City as being prejudicial to the health of the inhabitants, but its undisputed value and the impossibility of finding an efficient substitute soon left coal in possession of a field where there were no serious rivals. Its use, however, was at first limited; it was a luxury and therefore could only be enjoyed by a few; and the damage then done by smoke was small compared with that occasioned in modern times. This increased damage is owing to the ever-increasing use of coal among a population which is in itself rapidly augmenting, not only in numbers, but also in wealth. An increased population with an increased wealth per head means a vastly greater spending power on the luxuries of life; and warmth in the home is one of the first luxuries which comfort demands. The enormous advances which have been made in manufacturing by machinery during the last hundred years have caused the opening of an ever-increasing number of factories and mills, and therefore the demand for coal "to produce steam" has grown *pari passu* with its increased use on the domestic hearth.

In 1819 the attention of Parliament was directed to the question of the nuisance created by coal smoke and a Select Committee was appointed "to inquire how far persons using steam-engines and furnaces could erect them in a manner less prejudicial to public health and comfort." This committee gave an encouraging report. In 1843 another Select Committee recommended the introduction of a Bill prohibiting the production of smoke from furnaces and steam-engines. In 1845 yet another Select Committee reported that such an Act could not, *in the existing state of affairs*, be made to apply to dwelling-houses. The Acts of 1845 and 1847 followed as the results of these inquiries. But it was not until 1875 that there was any effective legislation on the subject, when the Public Health Act, 38 & 39 Vict., was passed, cap. 55, Part III., sec. 91, paragraph 7 of which enacts as follow:—

> Any fireplace or furnace which does not as far as practicable consume the smoke arising from the combustible used therein, and which is used for working engines by steam, or in any mill, factory, dye-house, brewery, bakehouse, or gaswork, or in any manufacturing or trade process whatsoever; and any chimney (not being the chimney of a private dwelling-house) sending forth black smoke in such quantity as to be a nuisance, shall be deemed to be nuisances liable to be dealt with summarily in manner provided by this Act: Provided, secondly, that where a person is summoned before any court in respect of a nuisance arising from a fireplace or furnace which does not consume the smoke arising from the combustible used in such fireplace or furnace, the court shall hold that no nuisance is created within the meaning of this Act, and dismiss the complaint, if it is satisfied that such fireplace or furnace is constructed in such manner as to consume as far as practicable, having regard to the nature of the manufacture or trade, all smoke arising therefrom, and that such fireplace or furnace has been carefully attended to by the person having the charge thereof.

This Act of Parliament still holds good for the country but for London another Public Health Act was passed which contained almost the same clauses as that of 1875 but transferred the power to act thereunder from the police to the local authorities. For various reasons this Act was allowed to fall into abeyance, and when the committee of the Coal Smoke Abatement Society first commenced operations its lines of procedure naturally lay in two directions—viz., first, to impress upon the local authorities the importance of enforcing their powers under the Act of Parliament; and secondly, to study the question of the pollution of the atmosphere by smoke from domestic fires. The first line has been continuously followed up with great success and it is pleasing to note that many of the authorities are now exercising their powers in a satisfactory manner. The society hopes that in another year or two their work in that direction will perhaps come to an end. But the second project is even more important though little progress has up to the present been made with it. There are various causes for this. In the first place, many persons have asserted that if the smoke emitted from factory chimneys were stopped the amount from private chimneys would not be sufficient to cause much harm in London and other large cities and towns. In the second place, the society had to contend against the apathy born of the custom of centuries and the inherent conservatism of the English people who, despite their dislike to "dirt," seemed quite prepared to put up with it if the price of cleanliness were the abolition of their coal fires. Another difficulty was experienced in refuting the false idea that the smoke in the atmosphere was one of the causes of the general healthiness of London. This sophistry has probably arisen from the analogy of the carbon filter—i.e., if carbon purifies water, why should it not purify air?

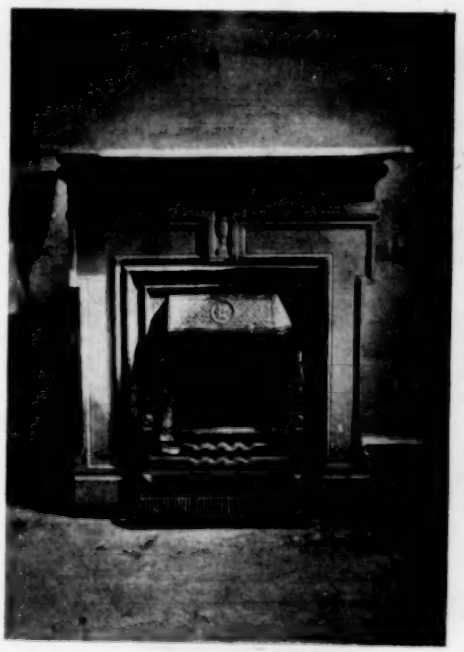
But opinion is changing steadily; more people are becoming interested in the question of smoke abatement and it is very likely that in the next few years we shall see not London only but all large towns demanding that something shall be done to diminish smoke. The society has been consulted many times as to the best method of abolishing smoke not only by the users of domestic grates but also by manufacturers using steam boilers and furnaces. Up to the present it has refused to give any counsel on this question, as it was not in a position to advise upon the many devices now employed with success in factories. It had no expert experience or knowledge as to boiler furnaces and it therefore refrained from pretending to be wise. Moreover, there existed expert engineers on this subject and the society considered that they were the persons to be consulted thereon. But on the subject of domestic grates there were no experts and although there exists an abundance of specifications and drawings of improved grates and appliances connected therewith no large manufacturer of grates has thought it worth his while to study the question of a smokeless grate, the manufacturers' idea appearing to be that there is "no money in it"—i.e., no demand on the part of the public for a type of grate which diminishes the emission of smoke. The society therefore stepped into the breach and authorised a sub-committee to institute a series of tests on a few domestic grates. Before describing these it is well to premise that the Coal Smoke Abatement Society is fully aware that the object it principally aims at—viz., smokelessness—can be attained by the use of smokeless fuels, such as anthracite coal, coke, gas, or oil. Any one who is interested in the question can coöperate by using at least one of those fuels and he may rest satisfied that he is contributing his part to remove one of the greatest evils from which London and all coal-burning cities suffer. Fortunately, too, each of these fuels in its different degree is within reach of everybody; but, as it appears that the great majority of householders are at present unwilling to accept anything but open grates burning smoky coal, the society has confined its tests to grates claiming more or less to be smokeless under such conditions.

In order to secure the most comprehensive results the society inserted in two London newspapers—viz., the *Daily Telegraph* and the *Daily Mail*—advertisements calling the attention of manufacturers to the tests which they proposed to make. To these advertisements a large number of replies were received, describing various grates the majority of which, however, did not fall within the specified limits—viz., an open grate burning smoky coal. A certain number therefore had to be selected, the specifications of which showed them to be such as the society was seeking, and the manufacturers of these selected grates were invited to send samples to be tested. Six only responded to the invitation and were willing to have the tests made by the society and to have the results published. In the meanwhile Lord Esher, C.B., Secretary to the Commissioners of His Majesty's Office of Works and Public Buildings, had expressed a strong interest in what the society was undertaking, and finally he offered to place at its disposal a room in which the tests could be properly instituted and the services of two skilled employés to conduct them. The assistance of the Government at such a moment was, of course, invaluable, as it ensured the tests being conducted in such a manner that each grate could be judged absolutely upon its merits. It was especially unfortunate in view of the

exceptional opportunities afforded by the Government that more manufacturers did not compete. Since so few came forward with suitable grates the results cannot be regarded as comprehensive. It cannot be for a moment asserted that the best open grate in the market has been discovered. All that can be claimed is that certain preliminary results of the highest importance have been obtained and that it has been shown to be capable of proof that there is a great difference in effectiveness and economy between the various types of so-called smokeless grates and that it is possible to produce them so as to reduce smoke pollution from domestic chimneys to a great extent while still using ordinary coal and an open grate.

The following is a general description of the circumstances in which the tests were made. A sitting-room on a ground floor in central London was selected, 21 feet 6 inches by 14 feet 6 inches by 10 feet 6 inches. Its two glass windows were always kept shut, but a small glass ventilator in one window was continually open, as was also a door leading to a narrow hall. The street door was whenever possible kept shut. The chimney measured 69 feet from hearth to pot, with a nine-inch pot on a flue 14 inches by nine inches. No high buildings were situated near. The tests were made in the months of June, July, and August, 1901. The meteorological observations for the days of the tests were noted and are added in an appendix. Each grate was placed in position by the maker's fixer with the intention of testing it for three days of eight hours each. The manufacturer's directions were given either verbally or in print to the man whose duty it was to attend to and to stoke the fire and to note the temperature of the room. The following orders of the sub-committee were observed. The amount of wood used in lighting and the amount of coal put on each time throughout the day were ascertained by weight, the

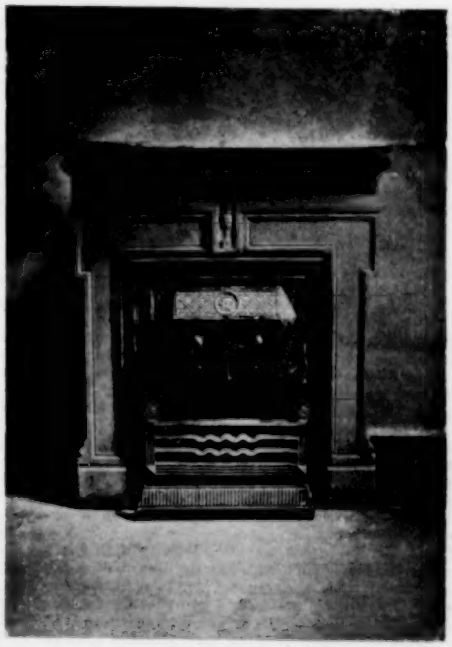
FIG. 1.



Grate No. 1, Original.

number of times the fire was stoked was noted, and the coke (or partially burnt coal) and ashes or waste at the end of each day's test were also duly weighed. Directions were given to keep the fire up to the top bar of the grate. Records of the temperatures were taken every half hour, one by a thermometer six feet from the fire and two feet above the floor level in order to give approximately the radiant heat; another at the far end of the room away from the window and the door, and five feet off the ground; and a third in the hall outside the room. The amount of smoke emitted was recorded by means of a smoke intensity scale or "smoke-shade," as indicating the proportion of unburnt carbon, on a time smoke chart (Bryan Donkin). It was estimated by a skilled man sitting in a window on the third

FIG. 2.



Grate No. 1a, Original with regulator. (We have omitted the plotted diagram of degrees of intensity of smoke on a time basis (see p. 1345) with reference to this grate.—ED. L.)

floor of the opposite house at an angle of about 30° from the top chimney and about 35 feet away. He was watching during the whole working day continuously without going away for meals. Every precaution was taken to avoid error and each grate was tested in exactly the same way. The coal was ordinary household bituminous smoky coal of rather poor soft quality and was all taken from one truck, the name of the colliery being unknown.

The following are the possible sources of error—the summer weather, the variation in outside conditions of atmosphere (although, as will be seen upon reference to the meteorological reports, the weather differed little throughout), and, finally, the fact that orders were given to keep a bright fire up to the level of the top bar, whereas in an ordinary room the fire is often allowed to become extinguished or to fall low, when it has to be relighted or carefully stoked. With all of the grates the densest smoke was noticed immediately after stoking. It would have been better to have made tests during winter.

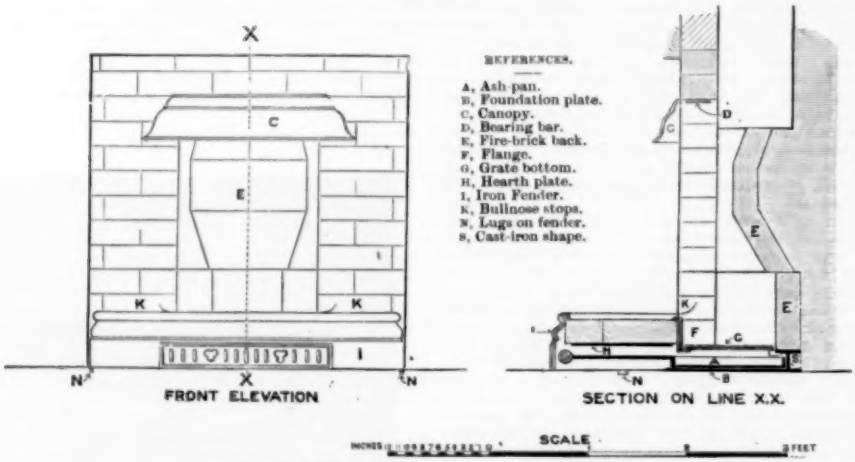
Six grates were tested, each for three days, in addition to the one which had been in use in the room previously, which being rather old-fashioned was taken as a standard and noted as No. 1.

Grate No. 1.—The following is a description of this grate. Fire-brick back with iron sides, three horizontal bars in front. The bottom of the grid was formed of horizontal iron bars with alternate air spaces, and was about four inches above the hearth level. (*Vide* Fig. 1 and Chart 1.)

The daily consumption of coal was 28,[1] 30½, and 32 pounds

[1] The 28 pounds represent the coal consumed between the hours of 10 A.M. and 5 P.M.; the other two amounts that consumed between the hours of 9 A.M. and 5 P.M.

FIG. 3.



Details of construction of Teale's patent front hob fire-place.

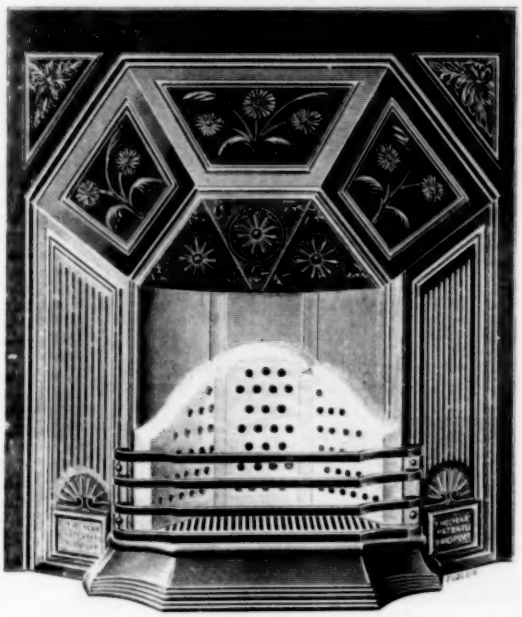
respectively; the amount of incompletely burnt coal left, three pounds, one and a half pounds, and three pounds; and the amount of ashes three and a half, one and a half, and three and a half pounds. The average daily differences in temperature between the outside thermometer and the radiant heat thermometer were 18·6°, 24·0°, and 26·24° F. The average time taken in raising the temperature from the morning scale to its average height was two hours, one and a half hours, and one hour respectively. The average number of times it was stoked (per day) for the three days was nine or ten times.

Grate No. 1a.—This was No. 1 grate with Lee's regulator added. This regulator is described as "a blower fitted with a damper. ..... It controls the supply of air to the grates and provides the proper velocity up the chimney." "The blower is joined to the regulator or damper at its lower edge by a hinge and is worked by means of a quadrant rachet." (Fig. 2.) The result of adding the regulator was as follows. The daily consumption of coal was 44, 33½, and 29 pounds respectively; the amount of incompletely burnt coal was two pounds per day; and the amount of ashes two pounds per day. It was stoked between 10 and 11 times each day. The average differences in range of temperature were 29·29°, 22·06°, and 20·29° F.; the time taken to raise the temperature of the room to its mean temperature was one and a half hours, one hour, and one hour respectively. [N.B.—This is the only appliance of which the testing exhibited somewhat contradictory results on each of the three days, and it is possible that some source of error was introduced which escaped notice. It gave the greatest heat with the greatest consumption of coal on the first day. This cannot be accounted for by the only known source of error—namely, that the chimney was not swept before its use. It was swept after and there was not much soot found.] The chimney smoked badly throughout independently of the amount of coal burnt.

Grate No. 2.—Teale's Patent "Front Hob" Fireplace. (*Vide* Fig. 3 and Chart 2.) This grate is constructed almost entirely of firebrick with a hot-air chamber below the fire which burns in a hollow or well. It is manufactured by the Teale Fire-place Company and is described by them as being of their standard pattern and the smallest size they make—viz., 13 inches. The bricks are salt-glaze. It has a canopy, a firebrick back and sides, and a cast-iron bottom or grid. It burnt 28, 28, and 23 pounds of coal on the respective days and left two, two and a half, and two pounds of partially consumed coal, and two, two, and one and a half pounds of ashes. Its heat production for the three days was 20·17°, 20·88°, and 18·47° F. respectively. One hour each day was occupied in producing this average heat and the grate was stoked between five and six times each day.

Grate No. 3.—Helyear's Patent "Tropic" Grate. This grate has no register and is entirely closed on the top. It possesses a canopy, a cast-iron back, and hexagonal projecting

FIG. 4.

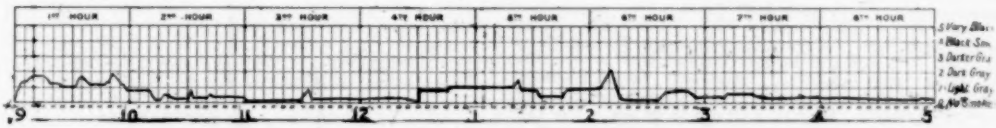


Grate No. 3. Helyear's patent "Tropic" grate.

cast-iron sides consisting of flues down which the heated gases pass on their way to the chimney. The lower portions of the back and sides are covered by a lining of cast-iron perforated plates or cheeks. The front consists of three horizontal iron bars and the bottom or grid of horizontal iron bars. (*Vide* Fig. 4 and Chart 3.) It burnt 23, 23, and 22 pounds of coal in the three days respectively, left one pound of

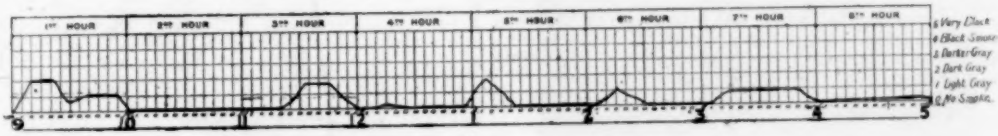
PLOTTED DIAGRAMS OR CHARTS OF DEGREES OF INTENSITY OF SMOKE ON A TIME BASIS. THE FIGURES BELOW SHOW THE TIME IN HOURS AND MINUTES ACCORDING TO THE SYSTEM OF THE LATE BRYAN DONKIN.

CHART 1.



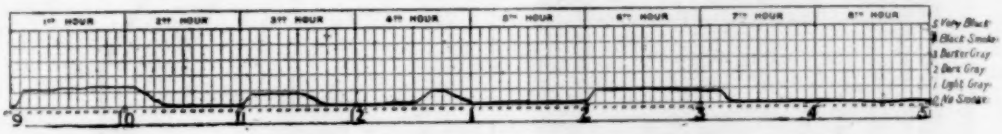
No. 1 Grate; ordinary dwelling-house grate; June 28th, 1901.

CHART 2.



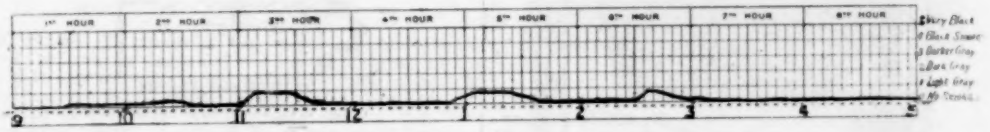
The Teale "Front Hob" Fireplace; July 11th, 1901.

CHART 3.



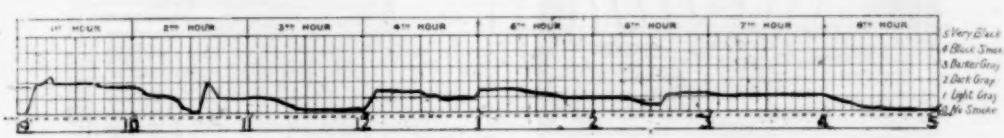
The Helyear "Tropic" Grate; ordinary dwelling-house grate; July 18th, 1901.

CHART 4.



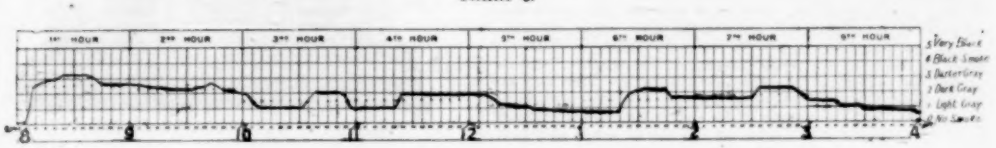
The Florence Grate; ordinary dwelling-house grate; July 25th, 1901.

CHART 5.



The Well Fire Grate; ordinary dwelling-house grate; August 1st, 1901.

CHART 6.



The Smith and Wellstood Stove; August 10th, 1901.

coke each day, and one pound of ashes on the first day and three-quarters of a pound on each of the next two days. It was, therefore, well constructed for the proper combustion of coal, but the amount of its radiant heat[2] was small—viz., 17·88°, 15·82°, and 16·71° F., one and a half hours being occupied each day to produce it. It only required stoking four times daily.

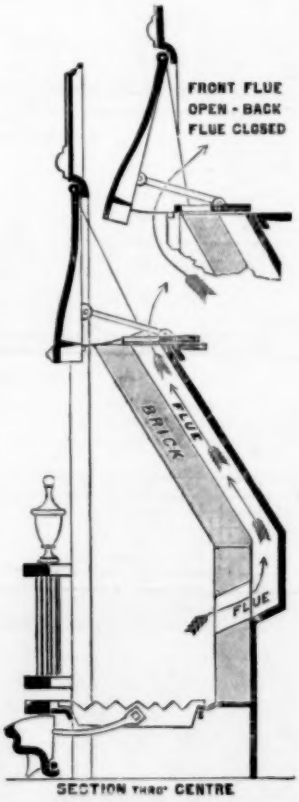
Grate No. 4.—The Florence Grate. (*Vide* Figs. 5 and 6 and Chart 4.) This grate is made by the London Warming and Ventilating Company, Limited, and is described as fitted with improved "Jackson" back, Florence's patent automatic shaking fire-bars, and combination canopy regulator. Its size is 21 by 28 inches. The back and sides are of fire-brick. It has a fire-chamber of 18 inches and a front of vertical iron bars. In each jamb at the hearth level there is a fresh-air inlet and there is a heated air outlet over the centre of the fireplace, six feet above the floor level. The "Jackson" back and combination canopy regulator consists of a sliding door capable of easy manipulation from the front which in its two positions allows of careful regulation or adjustment of the two slotted openings, the one at the back of the fire-grate and the other at the top (*vide* section showing side elevation, Fig. 6). The smoke is drawn through the fire

FIG. 5.

Grate No. 4. The Florence patent grate.

to a point where the heat is practically incandescent and is consumed to a very appreciable extent. The automatic shaking bars consist of a number of separate bars, preferably serrated or vandyked on their sides and upper surfaces. These are mounted loosely on a square shaft, so that the bars can rock to a limited extent on the shaft or can be rocked by operating the shaft by a handle. The bars are made abnormally deep in the body to heat the ascending air-currents. As the weight of the coal varies on the different bars the bars will rock and clear the fire of ashes and dust, so allowing a continuous current of air at a high temperature to pass through the fuel which causes it to burn brightly, even in small quantities. This grate consumed for the three days respectively 20, 19, and 18 pounds of coal and left

FIG. 6.



Grate o. 4. The Florence patent grate.

FIG. 7.

Grate No. 5. The Well Fire. (Bowes' patent.)

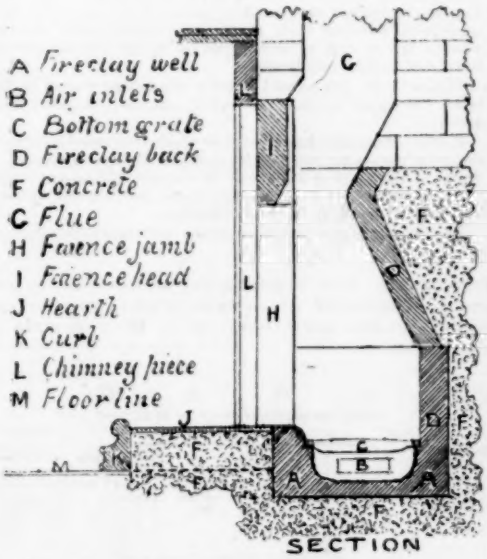
one and a half, one and a quarter, and one and a quarter pounds of coke and only three-quarters of a pound of ashes each day. The tests on the first two days lasting only for

[2] The average radiant heat stated in the text is the daily average difference between the readings of the thermometer in the hall and those of the thermometer in front of the fire.

seven hours each, 2¾ pounds and 2¼ pounds respectively of coal must be added for these days, making the figures 22¾ pounds and 21¼ pounds. The average radiant heat was 24·80°, 25·27°, and 24·47° F. One and a half hours, one hour, and one and a half hours were required respectively to raise the temperature to this average and the grate needed stoking four times daily.

Grate No. 5.—The Well Fire (Bowes' patent) consists of a fire-basket which is composed of fireclay and a metal grating supporting the fire, under which is a fireclay well. (*Vide* Figs. 7, 8, 9, and Chart 5.) This fire burnt in the three days

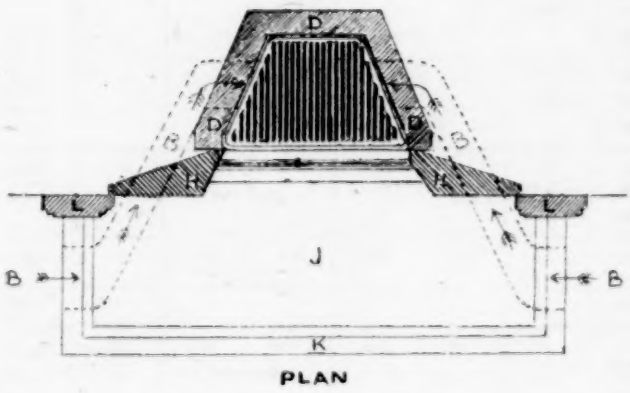
FIG. 8.



Grate No. 5. The Well Fire. (Bowes' patent.)

28, 30, and 26 pounds of coal respectively and yielded two, two and a half, and one and a quarter pounds of coke and one and a half pounds of ashes on each of the first two days and one pound on the third day. Its average radiant heat produced each day in one hour was 20·24°, 20·65°, and 20·76° F. It was stoked five times a day.

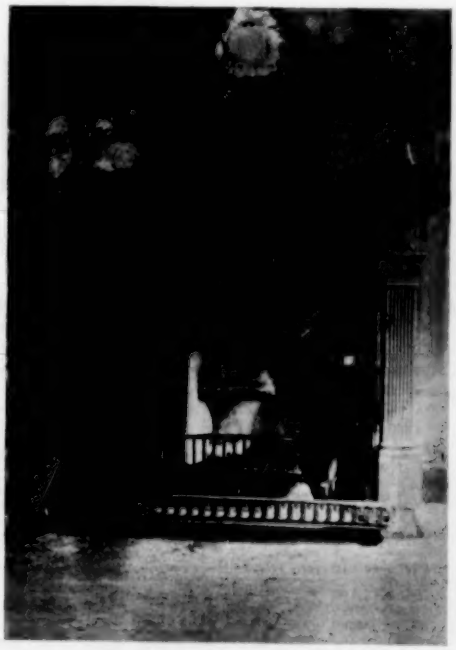
FIG. 9.



Grate No. 5. The Well Fire. (Bowes' patent.)

Grate No. 6.—This is Messrs. Smith and Wellstood's grate, of which the following is a description. The front was of cast iron and the back and sides were of firebrick. There were ten vertical iron bars in front. The bottom of the grate consisted of a solid iron plate portion at each end inclosing a rectangular grid of iron fire-bars with intervening air spaces. The bottom of the grate was four inches from the hearth level. The size was 38 inches by 38 inches. The fire-chamber was 18 inches in width. (*Vide*

FIG. 10.



Grate No. 6 (Smith and Wellstood's).

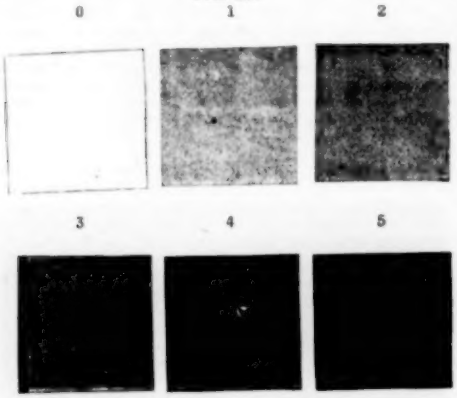
Fig. 10 and Chart 6.) This grate used in eight hours for each day respectively 27, 28, and 28 pounds of coal; it left one and a half pounds of partially consumed coal daily and one pound, one and a quarter pounds, and one and a quarter pounds of ashes, showing a good combustion. The average radiant heat was almost the same on each day, 20·37°, 20·94°, and 18·65° F. It took one and a half hours, one hour, and one hour to obtain this increase, and the grate was stoked between five and six times each day. It gave out a good heat but, as will be seen by the smoke chart, smoked badly.

Having now described in full the different grates and their consumption of coal and heat production a more detailed account must be given of their emission of smoke.

The following is the method adopted for calculating the comparative amount of smoke at the top of the chimney emitted by the different grates, all burning coal of the same quality and heating the same room.

If a Bryan Donkin smoke-chart be examined (*vide* Charts 1 to 6) it will be found to be divided by vertical lines into eight large sections, each of the latter being subdivided by more vertical lines into 12 smaller sections. Each of the eight sections is then divided by horizontal lines into five sections. The five sections represent the smoke-shade (*vide*

FIG. 11.



Diagrams of smoke-scale 0 to 5 (see also charts). 0, no smoke; 1, light gray; 2, darker gray; 3, very dark gray; 4, black; 5, very black.

Fig. 11), ranging from 0 (no smoke) to five (very black). The eight sections represent hours and each of the 12 subdivisions represents five minutes. From this scale or chart an average has been struck of the smoke-shade for the three days of the smoke evolved by each grate. The smoke figures thus obtained were as follows: for the ordinary grate (Grate No. 1), $\frac{5}{16}$; for the samp with Lee's regulator (Grate No. 1a), $1\frac{1}{12}$; for the Teale (Grate No. 2), $\frac{5}{16}$; for the Tropic (Grate No. 3), $\frac{5}{16}$; for the Florence (Grate No. 4), $\frac{1}{4}$; for the Well Fire (Grate No. 5), $1\frac{1}{16}$; and for the Smith and Wellstood (Grate No. 6), $1\frac{5}{16}$.

It will thus be seen that the figures vary greatly and that whereas one grate emits an average of $1\frac{5}{16}$ for three days, out of a possible smoke shade of 5 for three days, there were degrees in gradation from this figure down to $\frac{1}{4}$ out of a possible 5, showing that, at any rate under some circumstances, the amount of smoke can be diminished largely by the use of various appliances.

Tables I., II., III., and IV. are a condensed record of the tests, tabulated so that one result can be compared with another.

The experimenters beg to express their acknowledgement of the great assistance received from Mr. R. Bailey, Controller of Stores at His Majesty's Office of Works and Public Buildings, without whose kind help the successful carrying out of these experiments would have been impossible.

The labours of the several societies and committees devoted

TABLE I.—SUMMARY OF TESTS ON SIX DOMESTIC OPEN FIRE GRATES, WITH THE QUANTITY OF COAL BURNT, THE TEMPERATURE OF THE ROOM, AND THE SMOKE OBSERVATIONS MADE, DURING THE SUMMER OF 1901, ALL USED (ONE AFTER THE OTHER) FOR HEATING THE SAME ROOM AND BURNING THE SAME SMOKY COAL. MEAN RESULTS OF THREE DAYS' TESTS ON EACH GRATE FOR EIGHT HOURS EACH DAY.

(1) Name and number of grate.	(2) Amount of dry coal burnt (plus half the weight of wood for lighting) in eight hours in pounds.	(3) Amount of unburnt residue left in the grate at the end of the day in pounds.	(4) Number of stokings per day of eight hours.	(5) Mean temperatures of the air in degrees Fahrenheit. In the hall.	(6) At the end of the room.	(7) In front of the fire.	(8) The mean of columns 6 and 7 less column 5; or rise of temperature.	(9) Degree of smoke by smoke scale or average intensity by observation. Mean three days.
Florence—No. 4	19·00 Coal. + 0·75 Wood. 19·75 Total.	2·0 = 10·1 %	4·0	67·8	77·1	92·6 Mean 84·8	17·0	$\frac{1}{4}$
"Tropic" Helycar—No. 3	22·60 Coal. + 0·75 Wood. 23·35 Total.	1·7 = 7·2 %	4·0	74·6	78·4	91·6 Mean 85·0	10·2	$\frac{5}{16}$
Teale—No. 2	26·30 Coal. + 0·75 Wood. 27·05 Total.	4·0 = 14·8 %	5·7	72·2	76·2	92·0 Mean 84·1	11·9	$\frac{5}{16}$
No. 1, old; name unknown; no blower	30·10 Coal. + 0·75 Wood. 30·85 Total.	5·0 = 16·2 %	9·3	66·1	Not taken.		—	$\frac{5}{16}$
Well Fire—No. 5	28·0 Coal. + 1·0 Wood. 29·0 Total.	3·3 = 11·4 %	5·0	71·0	76·0	91·6 Mean 83·8	12·8	$1\frac{1}{16}$
No. 1A (old), with blower; same grate as No. 1	35·50 Coal. + 0·75 Wood. 36·25 Total.	4·0 = 11·0 %	10·6	70·8	75·6	94·7 Mean 85·1	14·3	$1\frac{1}{16}$
Smith and Wellstood—No. 6	27·60 Coal. + 0·75 Wood. 28·35 Total.	2·7 = 9·5 %	5·6	72·3	76·9	92·3 Mean 84·6	12·3	$1\frac{5}{16}$

The temperatures of the room, &c., were taken every half hour. These tests are placed approximatively in order of merit. See also Plotted results. The experiments were carried out by Dr. H. A. Des Vœux and the late Mr. Bryan Donkin, M.I.C.E., M.I.M.E., &c., with two assistants (Messrs. R. Hawkins and J. W. Smith).

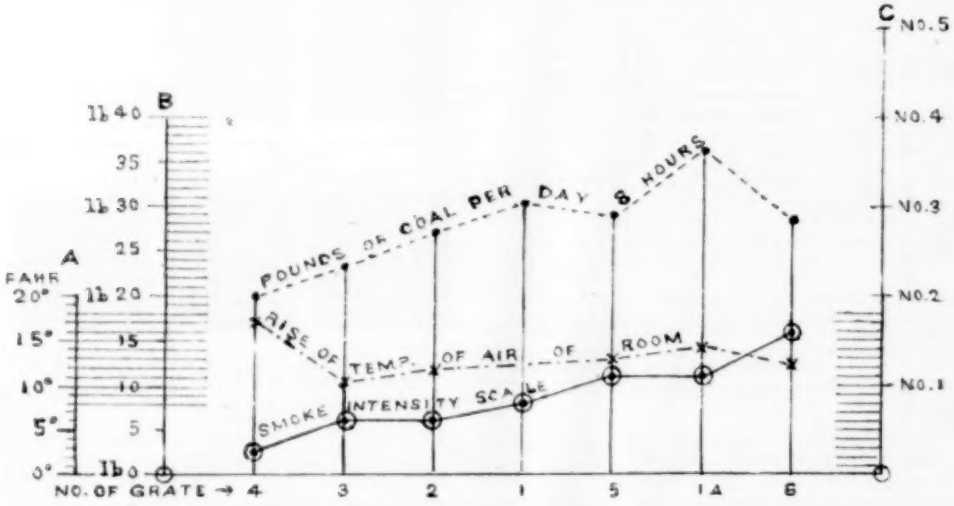
TABLE II.—TESTS ON SIX DOMESTIC OPEN GRATES IN LONDON. DETAILS OF SMOKE OBSERVATIONS. SEE SMOKE SCALES 0 TO 5. OBSERVATIONS EVERY FIVE MINUTES DURING EIGHT HOURS = 96 PER DAY. 23 DAYS' TESTS, SEVEN TO EIGHT HOURS, BURNING THE SAME COAL AND HEATING THE SAME ROOM. MAXIMUM SMOKE AT LIGHTING UP AND AFTER EACH STOKING. WARM SUMMER WEATHER, JUNE, JULY, AND AUGUST, 1901.

Number of grate.	Name of maker, &c.	Date of test and number of hours. Date.	Hours.	Number of smoke chart.	Smoke results, Nos. 0 to 5 smoke scale. Mean for the whole day.	Lighting up only.	Maximum during the whole day.	Minimum during the day.	Other notes on smoke.	Mean for the three days of each grate (Column 6).
		1901.								
No. 1 (without blower.)	Existing grate in room, name unknown.	June 27th.	7	1	1 (barely).	2 for 15 minutes.	2	½ for 30 to 40 minutes.	Never 0.	$\frac{5}{10}$.
	,,	,, 28th.	8	2	$\frac{5}{10}$	1½ for about half an hour.	2 for 2 minutes.	¼ for some hours.	,,	
	,,	July 1st.	8	3	$\frac{4}{10}$ (barely).	2 to 2½ for one hour.	2½ for a few minutes.	0 to ¼.	Zero at end of the day only.	
No. 1A (with blower).	,,	,, 3rd.	8	4	1 (fully) (1·1).	1½ to 2¼ for one hour.	2¼ six times for a few minutes each.	¼ for one and a half hours.	Never zero.	$1\frac{1}{10}$
	,,	,, 4th.	8	5	1½	1½ to 3 for one hour.	2 and 3 seven times for a few minutes each.	½ for one and a half hours.	,,	
	,,	,, 5th.	8	6	1 (fully) (1·1).	2 to 3 for half an hour.	3; 1½ nine times for some minutes.	½ (about) for one hour.	,,	
No. 2	Teale "Front Hob."	,, 10th.	8	7	¾	1½ to 2½ for half an hour.	2½; two to four times for a few minutes.	0 to ¼ for three hours (about).	Zero or no smoke for one hour.	$\frac{5}{10}$
	,,	,, 11th.	8	8	½	1 to 2 for half an hour.	2; 1 to 1½ five times for one and a half hours.	0 to ¼ for four and a half hours (about).	Zero for two hours.	
	,,	,, 12th.	8	9	½ (fully)	2 to 2½ for three quarters of an hour.	2½	0 to ¼ for five and a half hours.	Zero for three and a half hours.	
No. 3.	Helyear "Tropic."	,, 17th.	8	10	$\frac{1}{10}$	1¼ for three hours.	1	0 for one and a half hours.	Zero to ¼ for four hours.	$\frac{2}{10}$ (barely).
	,,	,, 18th.	8	11	¼	1¼ for one hour	1¼	0 to ¼ for four hours (about).	0 for two hours.	
	,,	,, 19th.	8	12	¼ (barely).	1½ for half an hour.	1½	0 to ¼ for four hours.	0 for one hour.	
No. 4.	Florence.	,, 23rd.	7	13	½ (fully).	¼ to ½ for one hour.	1	0 to ¼ for three and a half hours.	0 for two hours.	¼ (minimum of all grates).
	,,	,, 24th.	7	14	$\frac{2}{10}$ (barely).	,,	1½ for three minutes.	0 to ¼ for five hours (about).	0 for three and a half hours.	
	,,	,, 25th.	8	15	¼ (barely).	¼ for one hour.	1 for 20 minutes.	0	0 for five hours.	
No. 5.	Well Fire.	,, 31st.	8	17	1¼ (fully).	2 for half an hour.	2	¼ for half an hour.	Never zero.	$1\frac{1}{10}$ (fully).
	,,	August 1st.	8	18	1 (barely).	2 and 2¼ for half an hour.	2¼	Zero at end of the day for half an hour.	¼ for one hour.	
	,,	,, 2nd.	8	19	1 ,,	2½ for half an hour.	2½	¼ for one hour.	0 for one hour.	
No. 6.	Smith and Wellstood.	,, 8th.	7½	21	1½ (barely).	2½ to 3 for three-quarters of an hour.	3; five times 2 to 3.	¼ for three-quarters of an hour.	Never quite zero.	$1\frac{5}{10}$ fully (maximum of all grates).
	,,	,, 9th.	8	22	$1\frac{5}{10}$	2½ to 3½ for one hour.	3½	1 for two hours.	,,	
	,,	,, 10th.	8	23	$1\frac{5}{10}$	2½ to 3¼ for three-quarters of an hour.	3¼	½ for one hour.	,,	

to this cause must not be overlooked or forgotten, among others those of the National Health Society and the Kyrle Society and other promoters of the various Smoke Abatement Exhibitions; also the work of authors and writers upon the subject.

Finally, an apology must be made to all those inventors whose grates have not been tested, but it is desired to inform them that later some more tests will be made when all who are interested in the subject and would like their grates tested will be asked to forward to the experimenters full particulars of such grates.

FIG. 12.



Plotted results of tests on six domestic open fire grates used successively to heat the same room. A, temperature in degrees Fahrenheit; the middle line (Rise of Temperature, &c.) is plotted from this column. B, weight of coal consumed; the upper line (Pounds of Coal, &c.) is plotted from this column. C, smoke intensity scale; the lower line of the same name is plotted from this column. A, B, and C correspond respectively to columns 8, 2, and 9 of Table I.

TABLE III.—*Meteorological Readings (taken daily at 8.30 a.m. by Steward's Instruments).*

Date.	Barometer reduced to sea level and 32° F.	Direction of wind.	Rainfall.	Solar radia in vacuo.	Maximum temperature in the shade.	Minimum temperature.	Remarks at 8.30 A.M.
1901.							
June 27th.	30·29	E.	...	118	74	56	Fine.
,, 28th.	30·15	E.	...	120	75	55	Cloudy.
,, 29th.	30·11	E.N.E.	...	122	76	59	Fine.
July 1st.	29·70	S.W.	0·93	105	73	60	Overcast.
,, 3rd.	29·69	E.	0·15	125	75	58	Cloudy.
,, 4th.	30·02	E.	...	114	75	59	,,
,, 5th.	30·09	N.W.	...	125	87	62	Hazy.
,, 10th.	30·05	E.	...	122	85	56	,,
,, 11th.	30·09	E.N.E.	...	121	86	59	,,
,, 12th.	30·05	S.S.W.	...	113	85	60	Fine.
,, 17th.	30·26	S.	...	129	88	60	,,
,, 18th.	30·20	E.	...	124	86	66	Hazy.
,, 19th.	30·10	E.N.E.	...	122	90	63	,,
,, 25rd.	29·81	N.W.	...	89	67	58	Raining.
,, 24th.	29·56	S.	0·04	107	68	58	Overcast.
,, 25th.	29·52	S.E.	0·37	107	72	56	Cloudy.*
,, 26th.	29·60	N.	1·60	74	63	57	Overcast.
,, 31st.	30·22	N.	...	119	81	63	Hazy.
August 1st.	30·09	N.	...	116	73	61	Cloudy.
,, 2nd.	30·15	N.N.W.	...	121	78	62	,,
,, 3rd.	30·27	S.W.	...	116	75	59	,,
,, 8th.	30·02	W.	...	124	78	61	Bright.
,, 9th.	30·00	S.W.	...	122	86	61	,,
,, 10th.	29·60	S.E.	...	128	79	65	Cloudy.

*Thunderstorm in London lasted from noon until 4.30 P.M., during which period no less than 1·98 inches of rain were measured in the official gauge at Westminster.

TABLE IV.—*Showing Average Radiation and Rise of Temperature per Pound of Coal per Hour in Degrees Fahrenheit.*

No. of grate.	Average rise of temperature per pound of coal per hour in degrees Fahrenheit.	Average radiation per pound of coal per hour in degrees Fahrenheit.
1	—	5·82
1a	3·01	5·02
2	3·59	5·99
3	3·63	5·97
4	6·04	9·7
5	3·65	5·87
6	3·57	5·8

KING'S COLLEGE HOSPITAL FESTIVAL DINNER.—The annual festival dinner in aid of the funds of King's College Hospital was held at the Hôtel Métropole on April 28th, when Sir John A. Cockburn presided. In proposing the toast of the evening the Chairman said that the hospital ministered to the needs of a densely-populated area. Its income bore but a small proportion to the annual expenditure, being £2500 as against £20,000, so that £17,500 a year were needed to meet the deficiency. Additional space was necessary for several departments and for this purpose a sum of £75,000 was required. The amount of work done by the hospital was second to none of the most distinguished of the hospitals in the metropolis, and it should be remembered that it was from King's College Hospital that the results of Lord Lister's treatment which revolutionised surgery were given to the world. Subscriptions were announced during the course of the evening amounting to upwards of £1800.

THE METROPOLITAN WATER-SUPPLY.

VIII.[1]

THE KENT WATERWORKS COMPANY.

AT the present time the Kent Waterworks Company supplies a larger area than any other of the metropolitan water companies. A Bill is now being promoted by the company "for the purpose of raising further monies to enable them to fulfil their statutory obligations relating to the supply of water to supply some places adjoining their district, to acquire additional lands, and for other purposes." This Bill, having been amended in some details, has passed the Parliamentary Committee and will be reported to the House of Commons for third reading.[2] It is interesting to note that some of the local authorities opposed the Bill because they did not like the quality of the water. The evidence on which this opinion was founded was not heard, which is, on the whole, a matter for regret. In regard to the purity of the water and its freedom from organic contamination there can, as will be seen, be no doubt, and the objection taken to it was doubtless due to the fact that it is very hard—that it contains in solution a large quantity of lime salts. A conflict of expert evidence on this matter would at least have been interesting if not actually instructive. Formerly part of the present statutory area of the Kent Company was actually supplied with water softened by Dr. Clark's process, and there is on record some trustworthy evidence on this point which was investigated by chemists employed by the Government. To this matter reference will be made hereafter.

In the year 1850 the Kent Water Company, as it was then called, obtained its supply from the river Ravensbourne at Deptford. There were two reservoirs and two filter-beds at Deptford, whence the water was pumped to service reservoirs situated respectively in Greenwich Park, on Woolwich Common, and near the Marine barracks at Woolwich. Between the years 1850 and 1855 one new filter-bed was made, some engine power was added, the length of the main was increased, and the supply given was either "constant" or "given daily," instead of being given only six days during each week. The same source of supply—the Ravensbourne—was at that time still used.

In the year 1852 a company was registered (Oct. 14th, under the Act 7 and 8 Vict., c. 110) to supply Plumstead and some adjoining places. The undertaking was called the Plumstead, Woolwich, and Charlton Consumers Pure Water Company. The new works were "in competition with the Kent Water Company over a considerable portion of the district supplied."[3] The water supplied by the new company was obtained from a well and deep boring in the chalk which the report previously referred to states when first raised "has always an equal temperature of about 52° Fahrenheit, but the special advantage afforded to tenants of the company is that the water is softened by Dr. Clark's process." When pumped the water had 21½ degrees of hardness, 14½ of which were derived from carbonate of lime held in solution by carbonic acid. The softening process precipitated 13 grains of carbonate of lime and left the water bright and clear and possessing only eight and a quarter degrees of hardness. A description of Dr. Clark's process need not here be quoted, but the advantages derived from the treatment may be briefly referred to. The Commissioners appointed to report on the matter remarked that the advantages obtained by the use of the process were three: "health, comfort, and economy."

In regard to the question of health the Commissioners thought that there was no conclusive evidence as to the comparative wholesomeness of hard and soft water, and in speaking of the advantages of the softening process in regard to health they referred to the value which it was said to possess in removing in part the organic impurity which occurred in a state of solution in water. To what extent this improvement occurred the Commissioners did not consider themselves able to express an opinion, but they were convinced that the process "effectually prevents the rapid vegetation which ensues on the escape of free carbonic acid from water derived from the chalk and allowed to rest." This point had, they said, been satisfactorily proved at the Woolwich works. In regard to the second point they reported that "the comfort of a soft water for personal ablution and bathing will be admitted by all as no mean consideration in favour of the process." On the third point, that of economy, it was stated that this was effected chiefly in the saving of tea "and other articles of infusion," in soap, and in soda, the saving of labour in washing and of the wear-and-tear of clothes, and finally in obviating the incrustation of engine boilers, kettles, and other vessels. The Commissioners gave reasons for supposing that as to these points over-estimates had been made, but that notwithstanding this "the great advantages of the softened water cannot be questioned and they are well worthy consideration in all places supplied with water in which the process is applicable." They further held that the softening process was advantageous chiefly to water derived from wells in the chalk and "to other waters in which the hardness is due to carbonate of lime but which have acquired no tinge of discolouring admixture."

The Plumstead Company did not prove a financial success and ultimately became bankrupt, when the plant and business were taken over by the Kent Company which then extended its area of supply to the eastward to the districts of Charlton, Woolwich, and Plumstead, in which places there was no more competition. From the middle of the last century onwards the area supplied by the company has been extending. A list of the places included in the area of supply and the dates on which the extension of the business took place has already been given in THE LANCET and illustrated by a "map showing the areas supplied by the Kent Company on different dates."

The articles on the Kent Waterworks Company[4] gave a full account of the situation of the wells, of the reservoirs, and of the means by which the water was distributed and the changes which have been made in the company's arrangements since have not been very great. There was, indeed, no necessity for great changes. The area of the Kent Company is richly supplied with water contained in the chalk. Unlike the dirty water of the Thames and of the Lee this water does not require to undergo the processes of sedimentation and of filtration. All the Kent Company's water is derived from wells and all the company has done has been to sink the wells, to pump up the water, and to provide small reservoirs for its storage and pipes for its distribution. This work has been, on the whole, extremely well done. Few suggestions for improvement in the works of the company could reasonably be made. The alterations which have recently been made have been designed simply to meet the requirements of a growing business. In these circumstances it is not necessary to print here a table similar to that given in the case of some of the other companies showing these recent changes. The tables previously published in this series of articles have been given to show certain flagrant delinquencies on the part of those directors of companies who have made insufficient provision for the purification of the water derived from impure sources which has been supplied to certain parts of London. In the case of the Kent Company it will be sufficient to give the general statistics published by the Water Examiner for the month of January, 1902. The amount of water pumped during the month gave a daily average of 17,284,093 gallons. No "details" are given as to how much was supplied from each of the wells belonging to the company. This is a matter for regret. It is not strictly correct, moreover, for the Water Examiner to purport to give "details of the metropolitan water-supply" and then to omit to give the amount supplied by each well in use during the month. The approximate percentage of water delivered for other than domestic purposes was 20. The number of supplies given to houses, &c., was 101,380, and of these 101,180 were given on the constant system. The estimated population supplied within the district of the company was 608,280. The total number of miles of water-pipes was 692½, of which 351½ miles were within the metropolis. The number of miles of streets with water-pipes constantly charged within the metropolis was

[1] Articles I., II., III., IV., V., VI. and VII. appeared in THE LANCET of March 1st (p. 614), 8th (p. 692), 15th (p. 767), 22nd (p. 842), and 29th (p. 915), and April 5th (p. 986) and 19th (p. 1133), 1902, respectively.

[2] The Times, March 26th, 1902, p. 4.

[3] General Board of Health, Reports to the Right Hon. Sir William Cowper, M.P., London, 1856.

[4] THE LANCET Special Commission on the Metropolitan Water-supply, April 3rd (p. 976) and 17th (p. 1108), 1897.

434½. The company possesses 16 covered storage reservoirs and these have a total capacity of 13,623,000 gallons.

The accompanying table gives the results of the analyses made by Dr. T. E. Thorpe during the year 1901 and in the month of January of the year 1902, and the table has been compiled from the monthly reports issued by the Water Examiner. It will be noticed that the result of one analysis only is given for each month and only one complete analysis apparently was made by the chemist employed by the Local Government Board. The table gives the name of the place from which each specimen was taken, the temperature of the water, and the "total hardness" of the water expressed in parts per 100,000. In regard to the hardness of the water the table is to read thus: in the January sample 100,000 pounds of water contained 28·1 pounds of carbonate of lime, or an equivalent quantity of other hardening or soap-destroying ingredients. Formerly Dr. Clark's scale was adopted universally as the standard of the hardness of water, and it is to this scale that reference was made in the analyses of the Plumstead water quoted above. In order to express the results obtained by Dr. Thorpe on Dr. Clark's scale the figures given in the table should be multiplied by seven and the decimal point moved one place to the left; thus, according to Dr. Clark's scale the sample of water taken in January had $\frac{22{\cdot}7 \times 7}{10}$ degrees of hardness.

It will be noticed that the relative degree of hardness which was found in the specimens examined varied from 27·2 to 32·5. The specimens which showed the greatest degree of hardness were those taken in July and October, 1901, and in January, 1902. All these specimens, it will be further noticed, were taken from the cab-rank by Woolwich Arsenal Station. In regard to the July sample Dr. Thorpe reported that "the Kent Company's deep-well water drawn from the standpipe near Woolwich Arsenal Station was clear and of good quality, but owing to the greater proportion of salts in solution, including those causing hardness, the supply at this place was somewhat inferior to that distributed by this company in other places." In regard to the October sample Dr. Thorpe made no remark on the hardness of the water. In regard to the January specimen Dr. Thorpe observed that "as usual with samples collected near Woolwich Arsenal Station it was found to have a greater degree of hardness than the water in other districts supplied by this company." It is hardly to be supposed that Dr. Thorpe wishes it to be supposed that the contiguity of Woolwich Arsenal Station has any causal relation to the excessive hardness of the water drawn from pipes situated in its neighbourhood. A casual reader might, however, be led to make that inference. With the exception of the hardness of the water the customers of the Kent Company cannot reasonably make any complaint in regard to its quality. The amount of organic carbon and organic nitrogen which it contains is very small and it is clear and clean.

Should the water pumped from the district of the Kent Company be kept for the use of the people of that district it might, perhaps, reasonably be hoped that the supply would prove as sufficient in quantity as it is excellent in quality. At the present time, however, only the officials of the Kent Company know how much water is obtained from each well, and they alone know the levels at which the water now stands in each well. There is a very general idea prevailing in the rural parts of Kent that the area of the Kent Company has been unduly depleted by the abstraction of the underground water by the pumping operations of the company. Should a Water Board be established as proposed by the Government the power of abstracting water from the wells now belonging to the Kent Company would ultimately vest in a body over which the people of Kent would have practically no control. In the report of THE LANCET Special Commission on the Metropolitan Water Supply which was published in July, 1900,[1] this question was fully dealt with. It is not necessary to summarise what was there stated; it need only be said that since the date at which that report was published evidence has accumulated which has tended to strengthen and to confirm the views there expressed.

TABLE SHOWING THE RESULTS OF ANALYSES MADE BY DR. T. E. THORPE ON WATER SUPPLIED BY THE KENT COMPANY DURING EACH MONTH OF THE YEAR 1901 AND DURING THE MONTH OF JANUARY, 1902. THE RESULTS ARE EXPRESSED IN PARTS PER 100,000.

Date of collection of specimen.	Place of collection.	Temperature in degrees Centigrade.	Total solid matter.	Organic carbon.	Organic nitrogen.	Ammonia.	Nitrates as nitrates and nitrites.	Total combined nitrogen.	Chlorine.	Total hardness.
1901.										
January 19th	Cab-rank, New Cross.	11·0	37·68	0·039	0·008	0	0·471	0·479	2·1	28·1
February 18th	Police-station, Blackheath-road.	10·5	40·38	0·044	0·010	0	0·516	0·526	2·1	28·1
March 18th	"	10·5	41·24	0·043	0·010	0	0·509	0·519	2·3	29·0
April 16th	Cab-rank, New Cross Station, opposite Jerningham-road.	10·5	38·36	0·043	0·008	0	0·493	0·501	2·2	29·6
May 14th	"	12·4	38·78	0·042	0·006	0	0·457	0·463	2·3	27·8
June 6th	Cab-rank, Amersham-road, near New Cross Station.	12·5	40·36	0·036	0·007	0	0·498	0·505	2·2	28·7
July 15th	Cab-rank, Woolwich Arsenal Station.	15·4	51·80	0·058	0·012	0	0·611	0·623	4·7	32·5
August 19th	Police-station, Blackheath-road.	13·6	39·74	0·038	0·005	0	0·468	0·473	2·3	28·1
September 10th	Cab-rank, New Cross Station, opposite Jerningham-road.	12·8	39·58	0·037	0·009	0	0·453	0·462	2·2	28·1
October 7th	Cab-rank by Woolwich Arsenal Station.	12·0	49·00	0·058	0·007	0	0·606	0·612	2·8	31·0
November 11th	Cab-rank, Amersham-road.	11·0	41·32	0·055	0·009	0	0·439	0·448	2·2	28·1
December 9th	Cab-rank, New Cross Station.	11·8	38·88	0·048	0·006	0	0·442	0·448	2·2	27·2
1902.										
January 20th	Cab-rank by Woolwich Arsenal Station.	—	49·88	0·059	0·006	0	0·664	0·670	3·8	31·3

THE FOURTEENTH INTERNATIONAL CONGRESS OF MEDICINE.

THE Executive Committee of the Fourteenth International Congress of Medicine to be held at Madrid in April, 1903, has issued the following list of theses which are to be maintained at the next meeting.

Anatomy.—1. Which is the Best Method for the Didactic Exposition of the Nervous System? 2. What is the Actual Value of Anatomical Measures for the Ethnic Determination of Individuals? *3. The Structure of the Nerve-cell. 4. The Origin of Fibroblasts in New Formations of Connective Tissue, both Normal and Pathological.

Physiology.—*1. The Physiological Action of Saccharin: should it be prescribed with food and drink or should it only be employed as a drug? 2. The Effect of Glandular Toxins upon Muscular Contraction. 3. A Bio-chemical Study of Organo-Metallic and Metallic Combinations. 4. Experimental pancreatic glycosuria.

General Pathology, &c.—*1. Parasitism in New Growths. 2. The Origin of Sarcoma. 3. Blastomycetic Lesions. *4. Suggested Revision of the Classification and Description of Recognised Bacteria.

Therapeutics.—1. The Relationship of the Chemical Composition of Drugs to their Physiological Action. 2. The Dangers and Emergencies of the so-called Intensive or Exaggerated Medication in Chronic

[1] THE LANCET, July 21st, 1900, p. 181.

Affections, especially in Tuberculosis. 3. The Utility and Dangers of Intra-vertebral Injections of Cocaine in Medicine and Surgery. 4. The Method of the Physiological and the Remedial Action of Hypnotic and Narcotic Drugs.

Medical Hydrology.—1. The Physico-chemical Study of the New Gaseous Elements Argon and Helium in Mineral Waters. 2. Syphilis and its Hydro-mineral Treatment. 3. Tuberculosis and its Hydro-mineral Treatment.

Pharmacy.—1. The Therapeutic Standardisation of Antitoxic Serum. 2. The Importance of the Colloidal State of the Substance in the Preparation of Remedies and in their Pharmacological Action. 3. Hypodermic Injections, their Pharmacological Significance and the Advantage of Issuing a Pharmacopœia which Consolidates the Methods of Preparing and Preserving these Preparations. 4. The Necessity and Utility for Remedies of a Definite Therapeutic Strength by Adopting in each case an Identical Method of Obtaining them, of Preparing them, and of Estimating their Value.

Internal Pathology.—1. The Cerebral, Cardiac, and Renal Importance of Infection. *2. The Etiology and Prophylaxis of Malaria. 3. The Pathogeny of Cardiac Arythmia. 4. The Application to Clinical Medicine of New Investigations upon the Physical and Chemical Properties of Blood-serum.

Neuropathy.—1. Toxic and Infective Manias. *2. The Etiology and Therapeutics of Psychical Conditions. 3. The Centre of Projection and Association in the Brain as Determined by Actual Pathological Anatomy. 4. The Clinical Study of Agnosia and Asymbolism. 5. The Limitation of the Pathological Nature of Crime. 6. Of the Intervention of Psychiatry in the Reform of Criminals.

Pædiatrics.—1. The Therapeutic Value of Serum-therapy in Diphtheria. 2. The Treatment of Clubfoot. 3. The Treatment of Tuberculous Disease of Joints. 4. The Feeding of Young Children.

Dermatology and Syphilography.—*1. Gonorrhœa from the Medico-social Point of View. 2. Parasyphilitic Affections and the Retrospective Diagnosis of Syphilis. 3. The Treatment of Pruritus. 4. The Various Forms of Purpura.

Surgery.—*1. Death after Operation. 2. The Indications for Surgical Interference in Diseases of the Stomach.

Urinary Diseases.—1. The Remote Effects of Surgical Interference in Cases of Malignant Tumours of the Kidney. 2. The Comparative Value of the Present Means of Learning the Functional Condition of the Kidneys.

Ophthalmology.—1. The Surgical Treatment of Affections of the Lacrymal Tract. 2. The Necessity for Consolidating the Various Optometric Scales. *3. Optic Neuritis in the Course of Acute Disease. 4. Investigations on the Action of Drugs upon the Pupil, upon Accommodation, and upon Intra-ocular Tension.

Otology.—1. The Causes of Deaf-mutism. 2. The Anatomical and Clinical Study of Cholesteatomata. 3. The After-treatment of Operations on the Ear.

Rhino-laryngology.—1. Is it Advantageous from a Medical and Social Standpoint to Operate in Every Variety, in Every Phase, and at all Periods of Malignant Disease of the Larynx? 2. The Estimation of the Local Treatment of Tuberculous Disease of the Larynx. 3. Is Atrophic Rhinitis always Autochthonous? The Necessity of Establishing an Exact Diagnosis to Determine the Treatment in this Condition.

Odontology and Stomatology.—1. The Treatment and Stopping of Teeth with Diseased Pulps. 2. Dental Histology. 3. Bucco-facial and Skeletal Prothetic Appliances. 4. The Amount of Knowledge which should be Required to Practise Dentistry and the Methods of Teaching. 5. The Nature and Treatment of Pyorrhœa Alveolaris. 6. Local Anæsthesia in Dentistry.

Obstetrics and Gynæcology.—1. The Indications for Hysterectomy in Acute Puerperal Infection. 2. The Treatment of Placenta Prævia. 3. The Pathology and Treatment of Chronic Pelvic Cellulitis and Peritonitis. 4. The Indications and Results of Opotherapy in Gynæcology. 5. Conservative Surgery in Affections of the Uterine Annexa.

Military and Naval Medicine.—1. A Method of Solving the Problem of Tuberculosis in the Army. *2. The Advantages and Inconveniences of Compressed Drugs for Distribution to an Army in the Field. 3. The Influence of Military Life upon the Development of Affections of the Nervous System, especially on Neuroses. *4. The Hygiene of Troops at Sea and on Land on the West Coast of Africa. 5. The Prophylaxis of Syphilitic and Venereal Diseases in the Army. *6. The Cockpit in Modern Men-of-war.

Hygiene.—1. The Necessity to Determine the Prophylactic Value of Disinfection and a Criticism of the Proceedings usually Adopted. 2. The Practical Means, Individual and Collective, which are to be Adopted to Avoid the Dissemination of Dysentery. 3. The Advantage of Establishing Sanitary *Douanes* on the Land Frontiers of each Country. 4. The Advantage of Anti-tuberculous Dispensaries as a Means of Increasing the Vital Resistance of the Lower Classes. 5. Hygiene and Drains.

Forensic Medicine.—1. The Legal Significance of Wounds according to their Cause, Position, and Character. 2. The Medico-legal Idea of Deformity. 3. Discretion and Precocious Criminality. 4. The Capacity and Responsibility of Degenerates. 5. Upon the Localisation of Poisons.

Intending members of the Congress who are specially interested in the sections marked with an asterisk are requested to communicate with the Secretary-General of the Congress Dr. Fernández-Caro at Madrid.

Forms of applications for membership can be obtained from either of the secretaries of the National Committee for Great Britain and Ireland, Mr. D'Arcy Power, 10A, Chandos-street, Cavendish-square, London, W., or Dr. P. Horton-Smith, 15, Upper Brook-street, London, W. The subscription at present is £1.

HEALTH OF NEWQUAY.—Dr. A. Hardwick, the medical officer of health of Newquay (Cornwall), in his annual report for 1901 states that the population is estimated at 2914 and that the death-rate for the year was only 10·2 per 1000. The report adds that, excluding measles, which is a notifiable disease, there were only five other cases of infectious disease notified during the year.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

THE following is the report of Dr. Norman Moore, the representative of the Royal College of Physicians of London, in the General Medical Council on the proceedings of the Council at a special session held in February, 1902, when the differences between the Council and licensing bodies with regard to the preliminary education of the medical student were under consideration. A full report of these proceedings will be found in THE LANCET of March 1st, 1902, p. 626.

DR. NORMAN MOORE'S REPORT.

A special meeting of the General Council of Medical Education and Registration was held on Feb. 25th and 26th. The meeting was called to consider the report of the committee appointed on Dec. 4th, 1901, in accordance with the following resolution:—

> That a committee be appointed to prepare a report on the differences that exist between certain licensing bodies on the one hand, and the General Medical Council on the other, regarding the courses and conditions of study and the recognition of the institutions and schools in which the required courses may be taken, and that the report be considered by the Medical Council at a special meeting, when the Council will decide what action, if any, shall be taken, and in particular whether the circumstances are such as to require action to be taken under Section XX. of the Act of 1858.

The report of the committee is printed at length in the minutes of the Council (vol. xxxix., p. 70). It showed that the regulations of the University of Oxford, of the University of London, and those of the Royal College of Physicians of London and the Royal College of Surgeons of England differ in several particulars from the recommendations (sometimes called by the Council "requirements") of the General Council of Medical Education and Registration. The four bodies named agree in not requiring registration in the General Council's Register of Medical Students. The University of Oxford and the University of London in their regulations perhaps differ on the greatest number of points from the Council. The Royal College of Physicians of London and the Royal College of Surgeons of England differ in fact at present: (1) in not requiring the registration of a student in the Register of the General Council, and (2) in relation to the places at which courses of study in chemistry, physics, and biology may be taken after passing a preliminary examination in arts.

The committee issued eight recommendations. The first five of these stated that in consequence of these differences of regulation or acceptance of students who have worked under varying regulations the qualifications of—

The Royal College of Physicians of London,
The Royal College of Surgeons of England,
The University of Oxford,
The University of London,
The Royal College of Physicians of Edinburgh,
The Royal College of Surgeons of Edinburgh,
The Faculty of Physicians and Surgeons of Glasgow,
The Society of Apothecaries of London,

do not secure that the persons holding them possess the requisite knowledge and skill for the efficient practice of their profession.

Clause VI. recommended that the Council should, after preliminary warning, represent this fact to the Privy Council in November, with a view to deprive the above bodies of their power of granting qualifications to practise unless they altered their regulations.

A minority consisting of the Representative of the Royal College of Surgeons and myself presented a minority report, as follows:—

> I. Having considered the numerous differences in detail as to the courses of professional study required by the several qualifying bodies, we are of opinion that, even if it were desirable, it is impossible to obtain absolute uniformity, and recommend the Council to withdraw its late resolution requiring the approval by the General Medical Council of the scientific institutions recognised as places of study by the qualifying bodies.
>
> II. We are of opinion that the powers claimed by the Council in this particular do not exist.

The prefatory narrative of the report, with the appended observations and conclusions, were proposed for adoption and the proposal was carried.

The tone of the discussion was adverse to the adoption of the recommendations of the report, and Dr. McVail, chairman of the committee, asked leave of the Council to withdraw

the recommendations, and the leave was granted without a division. On the motion of Dr. Macalister, seconded by Dr. McVail, the Council then resolved:—

I. That the Council, under the powers granted by Section XVIII. of the Medical Act, 1858, require the Examining Board in England to furnish the Council with the following information regarding the courses of study in chemistry, physics, and biology to be gone through by candidates for the qualifications L.R.C.P. London and M.R.C.S. England, namely—

In respect of each of the teaching institutions recognised by the Royal Colleges but not approved by the Council,

(*a*) What are the methods of instruction, theoretical and practical, adopted in the subjects of chemistry, physics, and biology?

(*b*) What time is devoted by students to the recognised courses of study in each of these subjects?

(*c*) What subjects, other than chemistry, physics, and biology, are students permitted to study simultaneously with these subjects?

(*d*) What were the ages at the commencement of the recognised courses in these subjects of the students on whose behalf certificates of study were accepted by the Examining Board in the year 1901?

(*e*) What are the names and qualifications of the teachers of chemistry, physics, and biology, who give the recognised courses in these subjects?

II. That it is desirable that, under the powers given by Section XVIII. of the Medical Act, 1858, the examinations in chemistry, physics, and biology held by the several licensing bodies should from time to time be visited and reported on.

III. That in the first instance the examinations in chemistry, physics, and biology held by the Examining Board of the Royal Colleges in England during the present year be visited by two persons appointed by the President on behalf of the Council and that they be instructed to report on the scope, standard, and sufficiency of these examinations.

As the Council has no power of visitation of institutions, and no power to compel this College to visit the institutions it recognises for any part of the course, and as some of this information could only have been obtained in the process of visitation, it seems doubtful whether the Council can properly require all this information under Section XVIII. of the Medical Act of 1858, and it might be wise to ascertain the precise duties of the College under the Act in this particular; but as the Council may justly wish to be informed on everything relating to medical education, I think it would be right to furnish this information, so far as our records enable the College to do so, on the present occasion, and I spoke to this effect in the Council.

The early examinations of the qualifying bodies have not hitherto been visited, and whether the Council has power to visit them under the Medical Acts may, perhaps, be uncertain. Even if the power be non-existent in the Council our College would probably raise no objection to the proposed visitation; but it is clear that the visitation of the corresponding examinations of all the qualifying bodies should take place before this part of medical education can be fully discussed by the Council.

Throughout the prolonged discussion at the Council on the regulations of our College as regards the first year of medical study, now I hope concluded, I have endeavoured to make clear to the Council that as the powers of the College as regards its own curriculum rest not only upon Acts of Parliament and charters, but also upon its obvious competence to deal with questions of medical education, it cannot permit any encroachment upon its sphere of responsibility, but that it will always in the future, as it has since the General Council came into existence, do all in its power to aid the Council in the duties which the Medical Acts have prescribed for it. (Signed) NORMAN MOORE

(Representative of the College in the Medical Council).

April 23rd, 1902.

Looking Back.

FROM

THE LANCET, *SATURDAY, MAY* 8, 1824.

ST. BARTHOLOMEW'S HOSPITAL.

The accidents admitted here this week are a fractured patella, dislocation of the left os humeri; fracture of the tibia and fibula; case of cut throat, and a child with a severe burn.

Sir LUDFORD HARVEY has resigned his situation as surgeon to this institution; Mr. LAWRENCE will succeed him. There are three or four candidates for the assistant surgeonship, but we are unwilling to say any thing at present about the election, that may injure either party. But there is one circumstance to which we must allude, which is, that one of the candidates has not served an apprenticeship to the hospital, and if he be duly qualified for the post, (which we believe him to be) we should be heartily glad for him to obtain it. The present system of electing hospital apprentices to fill the office of surgeons in preference to all others, without any reference to the respective merits of the candidates will not, we feel convinced, last very long. The medical profession in this country has existed for centuries without being subjected to the controul of the press; but the times are changed, and we trust that the repeated exposure of existing abuses will at last produce their reformation.

WESTMINSTER HOSPITAL.

JOHN LONGHURST, who was admitted into this hospital under the care of Sir ANTHONY CARLISLE, a month ago, with a fractured patella, is recovering very rapidly; the bone is united closely, so much so, that instead of the depression felt usually in these cases on its surface, a small narrow edge[1] is plainly perceived, thus clearly proving that the two portions of bone are adhering to each other, by an osseous deposit having taken place, and that the mode of treating such cases, by bringing the fractured parts together, is superior to any in use at the present day.

NOTICE TO CORRESPONDENTS.

We will comply with Y.'s request, and give a case in Latin next week.

The Index to Vol. I. was published with the first number of Vol. II. It is again out of print, but will be reprinted in a few days.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8713 births and 4724 deaths were registered during the week ending May 3rd. The annual rate of mortality in these towns, which had been 18·3 and 17·0 per 1000 in the two preceding weeks, further declined to 16·6 last week. In London the death-rate was 15·7 per 1000, while it averaged 17·0 in the 75 other large towns. The lowest death-rates were 7·6 in Hornsey, 8·5 in Reading, 8·6 in King's Norton, 9·4 in Devonport, 10·3 in Walthamstow and in Derby, and 11·1 in Leyton and in Wallasey; the highest rates were 22·2 in Stockton-on-Tees, 22·5 in Hanley, 22·8 in Blackburn, 23·0 in Tynemouth, 23·7 in Wigan, 24·5 in Oldham, 24·8 in Rochdale, and 25·5 in St. Helen's. The 4724 deaths in these towns last week included 489 which were referred to the principal zymotic diseases, against 596, 550, and 534 in the three preceding weeks; of these 489 deaths 138 resulted from whooping-cough, 98 from measles, 64 from small-pox, 63 from diphtheria, 48 from scarlet fever, 39 from diarrhœa, and 39 from "fever" (principally enteric). In Hornsey, Norwich, Plymouth, Coventry, Swansea, and seven other smaller towns, no death from any of the principal zymotic diseases was registered; while the highest zymotic death-rates were recorded in West Ham, Grimsby, Bolton, Burnley, Barrow, South Shields, and Rhondda. The greatest mortality from measles occurred in Northampton, Burton-on-Trent, Barrow-in-Furness, Rhondda, and Merthyr Tydfil; from scarlet fever in Wigan and in Bolton; from whooping-cough in West Bromwich, Aston Manor, Grimsby, Bolton, South Shields, Gateshead, and Newcastle-on-Tyne; and from "fever" in Aston Manor. The mortality from diphtheria showed no marked excess in any of the large towns. Of the 64 fatal cases of small-pox belonging to these towns registered last week 43 belonged to London, 13 to West Ham, two to Tottenham, two to South Shields, one to Willesden, one to East Ham, one to Oldham, and one to Rhondda. The number of small-pox patients in the Metropolitan Asylums hospitals at the end of last week was 1442, against 1431 and 1515 at the end of the two preceding weeks; 250 new cases were admitted during the week, against 274, 328, and 367 in the three preceding weeks. The number of scarlet fever cases in these hospitals and in the London Fever Hospital, which had been 2146, 2155, and 2188 on the three preceding Saturdays, had further risen to 2222 on Saturday last; 258 new cases were admitted during the week, against 264, 269, and 283 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 299, 316, and 315 in the three preceding weeks, further

[1] Corrected to "ridge" in THE LANCET of May 15th, 1824.

declined last week to 240 and were 54 below the average. The causes of 63, or 1·5 per cent., of the deaths in the 76 large towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Bristol, Nottingham, Newcastle, and in 47 other smaller towns; the largest proportions of uncertified deaths were registered in Birmingham, Aston Manor, Leicester, Liverpool, Middlesbrough, and Stockton-on-Tees.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 24·6 and 21·1 per 1000 in the two preceding weeks, further declined last week to 18·9 per 1000, but was 2·3 per 1000 in excess of the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 15·8 in Edinburgh and in Aberdeen to 21·1 in Paisley and 23·4 in Greenock. The 612 deaths in these towns included 28 which were referred to whooping-cough, 23 to diarrhœa, 15 to measles, five to "fever," four to diphtheria, two to scarlet fever, and one to small-pox. In all 78 deaths resulted from these principal zymotic diseases last week, against 63 and 70 in the two preceding weeks. These 78 deaths were equal to an annual rate of 2·4 per 1000, which was 0·7 per 1000 above the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of whooping-cough, which had been 21 and 29 in the two preceding weeks, fell last week to 28, of which 16 occurred in Glasgow and six in Aberdeen. The deaths from diarrhœa, which had been 10 and 17 in the two preceding weeks, further rose last week to 23, and included 14 in Glasgow and three in Dundee. The fatal cases of measles, which had been 10, 18, and 13 in the three preceding weeks, rose again last week to 15, of which five occurred in Edinburgh, five in Dundee, and four in Glasgow. The deaths from scarlet fever, which had been eight, two, and five in the three preceding weeks, declined again last week to two, one of which occurred in Edinburgh and one in Greenock. The fatal cases of diphtheria, which had been seven and four in the two preceding weeks, was again four last week, of which two occurred in Glasgow. The deaths from fever, which had been five, four, and one in the three preceding weeks, rose last week to five, of which three occurred in Glasgow and two in Greenock. The fatal case of small-pox was registered in Glasgow. The deaths from diseases of the respiratory organs in these towns, which had been 188, 199, and 161 in the three preceding weeks, further fell last week to 138 and were slightly above the average in the corresponding period of last year. The causes of 25, or more than 4 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 23·0 and 26·8 per 1000 in the two preceding weeks, declined again last week to 24·9 per 1000 during the week ending May 3rd. During the past four weeks the death-rate has averaged 25·4 per 1000, the rates during the same period being 17·1 in London and 19·3 in Edinburgh. The 181 deaths of persons belonging to Dublin registered during the week under notice showed a decline of 14 from the number in the preceding week, and included nine which were referred to the principal zymotic diseases, against 10 in each of the two preceding weeks; of these, three resulted from measles, three from "fever," one from diphtheria, one from whooping-cough, and one from diarrhœa. These nine deaths were equal to an annual rate of 1·2 per 1000, the zymotic death-rate during the same period being 2·0 in London and 0·3 in Edinburgh. The fatal cases of measles, which had been two in each of the two preceding weeks, increased last week to three, while the three deaths from "fever" showed a slight decline from the number in the preceding week. The 181 deaths in Dublin last week included 21 of children under one year of age and 52 of persons aged upwards of 60 years; the deaths of infants being considerably below, and those of elderly persons rather above, the numbers in recent weeks. Seven inquest cases and three deaths from violence were registered; and 70, or more than a third, of the deaths occurred in public institutions. The causes of eight, or more than 4 per cent., of the deaths registered in Dublin last week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

IN accordance with the provisions of Her late Majesty's Order in Council of April 1st, 1881, Fleet Surgeon I. H. Anderson has been placed on the retired list at his own request, with permission to assume the rank of Deputy Inspector-General of Hospitals and Fleets. Dated April 30th, 1902.

Staff Surgeon W. J. Maillard, V.C., has been placed on the retired list of his rank. Dated April 7th, 1902.

The following appointments are notified:—Staff Surgeon G. T. Collingwood to the *Sutlej*. Surgeons: E. T. P. Eames to the *Jupiter* and M. J. O'Regan to the *Sans Pareil*.

ARMY MEDICAL SERVICE.

Surgeon-General C. MacDonagh Cuffe, C.B., is placed on retired pay.

Major T. C. McCulloch, R.A.M.C., to be a Deputy Assistant Director-General, vice Major W. G. Macpherson, R.A.M.C., whose period of service in that appointment has expired. Dated May 1st, 1902.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel Richard Henry Quill to be Colonel, vice R. C. Eaton, deceased. Dated March 16th, 1902.

Lieutenant-Colonel R. Drury retires on retired pay on account of ill-health.

Captain Frederick Smith, D.S.O., to be Major. Dated March 30th, 1902.

Lieutenant-Colonel W. B. Slaughter is ordered to Salisbury Plain for duty at the temporary General Hospital, Bulford Camp. Lieutenant T. Finucane has been transferred to the Punjab Command from Bombay.

IMPERIAL YEOMANRY.

Suffolk (The Duke of York's Own Loyal Suffolk Hussars): Surgeon-Lieutenant Sir F. Treves, K.C.V.O., C.B., resigns his commission.

VOLUNTEER CORPS.

Royal Garrison Artillery (Volunteers).—1st Argyll and Bute: Surgeon-Lieutenant T. H. Thomson to be Surgeon-Captain. 2nd Devonshire: The resignation of Surgeon-Lieutenant H. W. Webber, which was announced in the *London Gazette* of April 22nd, 1902, is cancelled.

Rifle: 5th (Glasgow Highland) Volunteer Battalion, the Highland Light Infantry: William Ritchie to be Surgeon-Lieutenant.

SOUTH AFRICAN WAR NOTES.

Lieutenant Beatty, R.A.M.C., reported dangerously ill showed a slight improvement on May 5th.

Major J. P. S. Hayes, R.A.M.C., Lieutenant P. H. Falkner, R.A.M.C., and Civil Surgeon McCrea are returning from South Africa to England.

MEMORIAL TO MEMBERS OF THE ST. JOHN AMBULANCE BRIGADE.

On June 11th, at 12.30 P.M., the Prince of Wales, Grand Prior of the Order of the Hospital of St. John of Jerusalem in England, will unveil the memorial to the members of the St. John Ambulance Brigade who have died while on active service in South Africa. This memorial has been erected by the King and the Chapter-General of the Order in St. John's Church, Clerkenwell.

COLONIAL TROOPS' ENTERTAINMENT COMMITTEE.

Earl Roberts and the Earl of Jersey have joined the Colonial Troops' Entertainment Committee. The colonel and officers of the 20th Middlesex (Artists) Corps have forwarded to the committee an invitation to a regimental smoking concert for the officers and non-commissioned officers of the various contingents who are coming to England for the Coronation.

VACCINATION EXPENDITURE.—At the meeting of the St. Columb Board of Guardians held on April 18th it was reported that the vaccination fees for the past quarter amounted to £53, being double the amount for the corresponding quarter of 1901. It was stated that one public vaccinator vaccinated his own child and charged 8*s.* for the operation and another vaccinated himself and his wife and charged 2*s.* 6*d.* in each case. In reply to a question the clerk remarked that the Local Government Board stated that persons who were vaccinated by the public vaccinator were not to be considered as paupers, but the chairman said that he was of a contrary opinion.

Correspondence.

"Audi alteram partem."

PAYING WARDS AND PAYING HOSPITALS.

To the Editors of THE LANCET.

SIRS,—I am rather sorry to see that no notice has been taken of Sir Henry Burdett's letter, as the subject is one of great importance to the medical profession and its bearings deserve careful consideration. In America there is a good deal of complaint on the part of the profession of paying hospitals with salaried staffs which have been started as commercial undertakings and pay a dividend to their shareholders. A medical paper, writing of one of these institutions, tells us that it offers physicians, nursing, board, washing, and everything necessary for 12 dollars a week during sickness and an annual subscription of 12 dollars a year. That is to say, for an annual subscription of £2 8*s.* any person can insure all needful hospital accommodation with medical or surgical assistance in case of illness at the very moderate cost of £2 8*s.* a week. It is complained of these institutions that they cater for classes which are financially well off and that they are enabled to make a profit at the expense of the medical profession.

Everyone recognises the advantages of hospital organisation and hospital methods in the treatment of disease and sympathises with the desire to bring these advantages within the reach of the class that lies between the rich, for whom there are nursing homes, and the poor, who have the charitable hospitals. There is probably no special difficulty in organising such institutions and they could be more economically administered if connected with charitable hospitals, as Sir Henry Burdett recommends, as they would thus escape many heavy establishment charges. It might be possible to provide bed, food, washing, nursing, and medicines for 25*s.* or 30*s.* a week, and if the case needed only the attendance of a general practitioner the expenses of the illness would probably be less than at home. But surely the success of hospital treatment is not solely dependent upon good sanitary surroundings and disciplined nursing. The special skill of the visiting staff counts for something, and I should like to know how their services are to be obtained for persons paying £1 10*s.* or £2 a week? I do not go so far as to say that we should always charge full fees or nothing, but it must be admitted that there is a difficulty about reducing fees unless the considerations for which the reduction is made can be quite well defined. Speaking for myself, I should have no objection to seeing cases in such a paying hospital at half my usual fees if there were some means of ascertaining that the patient was unable to pay more; but how is this to be done without an inquiry such as is generally resented? If paying wards are to form a dependence of a charitable hospital it should be understood (1) that the members of the visiting staff of the hospital are not obliged to undertake the charge of patients in the paying wards as part of their duty to the hospital; and (2) that for their attendance upon patients in the paying wards they should be paid by fees fixed according to a reduced scale to be hereafter agreed upon.

The fixing of this schedule of reduced fees would have to be done by a conference between the administration and the medical staff. Supposing this difficulty got over the staff would naturally desire to prevent well-to-do persons taking advantage of these reduced prices. I can only see two ways in which this can be done, either by confining admission to people with incomes below a certain limit or by leaving the work to be done by the junior members of the staff. I do not think the second plan would be altogether satisfactory and there are obvious but not insuperable objections to the first. In considering all these questions we must bear in mind that we have to satisfy the just claims of the medical profession on the one hand and the requirements of the public on the other. It seems extremely probable that such hospitals will be established and it will be better for the medical profession to consider the conditions under which such institutions can be made, if not free from all objection, as free from objection as possible.

I am, Sirs, yours faithfully,

Birmingham, May 6th, 1902. ROBERT SAUNDBY, M.D. Edin.

THE BATTLE OF THE CLUBS.

To the Editors of THE LANCET.

SIRS,—In view of the correspondence which you have recently published on the question of club practice and contract work I think it may not be inopportune to narrate as shortly as possible what has been achieved by the medical practitioners of Stockport during the past seven years and to draw certain deductions from their many experiences. In 1895 there were some 40 clubs in the town, under the care of various medical men; the rate of pay was 2*s.* 6*d.* per head per annum. These clubs were approached with a view to raising the rate to 4*s.* 4*d.* per annum, together with various other conditions, including an examination fee on entrance and a wage limit. *Two* clubs *only* accepted the proposed scheme and with these matters have run smoothly ever since. The reception vouchsafed to the proposed reforms by the 38 remaining clubs was varied; the contumely and contempt expressed towards the "medical profession" were unanimous. Failing reform, in 1896 the "profession" resigned in an equally unanimous manner, as *two* medical men only declined to join their brethren. Since that time the clubs here have been without doctors, with the above-mentioned exceptions, and in those cases the payment has been raised to 4*s.* 4*d.* The experience of years has proved to the clubs that they can do very well without medical men, and the latter have come to the conclusion that the former are a good riddance. And thus peace is reigning. A so-called provident dispensary has existed in the town for some 10 years. The local medical society, seeing and seizing an opportunity, took over the medical management of this institution last August, the object being "to end it or mend it." I inclose a report, drawn up and presented to the managing committee, which will explain the working of the concern and the conclusions arrived at by the medical men after a four months' experience of the work. The Stockport Provident Dispensary was disbanded by resolution of the committee and members at the end of 1901.

Now I have taken a great interest and an active part in this matter from the beginning, and with the knowledge and experience gained in the past seven years I hope I am now able to make some useful deductions for the benefit, firstly, of the profession to which I belong, and secondly, for the friendly societies and all who desire to encourage thrift and providence, but not at the expense of any one section of the community. The whole matter is one of business pure and simple and philanthropy and charity do not enter into the question at all. The friendly societies have declared openly that they ask no concessions and disclaim any suspicion of charity in their dealings with medical men. From what I know of these societies I thoroughly believe their sincerity; their business instincts are good, their financial position is secure, and they are subject to adequate supervision and control. The medical profession has hitherto failed to meet them in a businesslike manner. Medical men are lamentably lacking in business methods. How many know what they can legally deduct as "practice expenses" in making an income-tax return? How many have the very faintest idea what it costs to see a patient? Can one in a hundred state the *average* cost of an eight-ounce bottle of medicine? I cannot understand how any solution of the present difficulty with respect to club and contract work can ever be found unless some data can be established on which to base charges for visits and consultations. I have done my little towards elucidating the matter and made calculations some years back which may be of value. I have not kept the exact figures but the result was so uniform over a period of four years that the details are immaterial. From 1893 to the end of 1896 my practice was a general working-class. I kept a horse and trap and a dispenser. The radius of my work rarely extended more than one and a half miles from my house. The district was thickly populated and found employment for about one medical practitioner to every 1600 inhabitants. I had between 500 and 600 club patients, all at 2*s.* 6*d.* per head per annum. An analysis of two years' work for them, 1893 and 1894, showed that I *received* 5½*d.* for each consultation at my surgery, or each visit at their homes, medicine included. A calculation made on the *whole work* of the practice showed that the actual *cost* to me of each consultation or visit, including medicines, averaged for the four years 1*s.* 2*d.* each. It is thus evident that the club portion of the work acted as a serious discount on the remainder. Since giving up club

practice the expense per visit has fallen somewhat and now probably averages 1*s.* I do not consider 1*s.* or 1*s.* 6*d.* an "exorbitant" charge, in addition to out-of-pocket expenses, for my time, skill, and trouble in the case of each patient seen. It may be of interest to note that my drug and bottle bill amounted to about one-sixth of the total practice expenses. I have entered thus minutely into details in the hope of eliciting similar expression of experiences from my professional brethren. I do not see how we can come to any agreement with the friendly societies without some such basis as a standpoint for our demand for a higher rate of remuneration. If we can fairly prove that the actual cost of seeing a patient is 1*s.* and that we expect a minimum of 1*s.* as a fee for our skill and time, the societies can have very little further argument to bring; as they say here, "they may take it or leave it." To obtain this rate of remuneration the annual club contribution would have to be raised to quite 10*s.* per head on my experiences. But, after all, what necessity is there for "contract work" at all? It is debasing sort of work, hardly better than gambling; the patient wants his money's worth and will see that he gets it; the medical man is harassed and worried at all times with trivialities and is generally regarded with suspicion, and has for ever lost that possession "independence" so dear to the "working-man," though perhaps equally dear and less often acquired by the harder "working doctor." Now my solution of the question is simple enough; it can be attained in a little time with a little trouble. It cannot be settled either by the General Medical Council or by conciliation boards, nor can the assembled friendly societies "bring the doctors to their knees." It is a matter for local arrangement and district medical societies in collaboration with the friendly societies have the solution in their own hands. The means are as follows in any given district.

1. As many medical men as possible must undertake to ascertain by a uniform system of account and bookkeeping the actual average cost of seeing patients for one year. This amount plus 1*s.* to form the *minimum* charge for a surgery consultation or a day visit within a given distance. The accuracy of this estimate may be checked by continuing the investigation for three years and then correcting the result on the longer experience.

2. The medical men draw up a "tariff" based as above, with extra charges for night visits, or visits outside a certain radius; also a charge for "repeat medicines" where no visit is made or consultation given. This should be as small as possible in order to discourage the detestable tendency to making the charges depend on the quantity of physic that can be got down people's throats. Other services, operations, &c., can be readily priced in such a tariff.

3. The clubs are provided with the names of medical men willing to attend members on tariff charges. The clubs will be responsible for the payment of accounts up to the amount as specified in the tariff. The members select their medical attendant from the list, and in their relationship with him they are exactly as any ordinary private patient; they are mutually dependent and independent, and changes can be made in accordance with the wishes and proper custom of either party. This arrangement quite overcomes the "wage limit" difficulty. Any medical man can decline any patient he thinks fit on any ground or can accept him on the condition that the charges will be in excess of the tariff, the patient being responsible for the excess. If any medical man accept a well-to-do patient on tariff charges it is his own look-out.

4. The tariff charges will be slightly lower than the usual charges for persons in similar position on account of the security for payment afforded by the society.

5. Women and children can be admitted at similar rates to adult males and under similar circumstances. The sole objection I can see to my suggestion is that it will entail the friendly societies paying 10*s.* per head per annum unless I have very much over-estimated the cost of working-class practice. I do not think I have been lavish in my treatment, but I know I never heard of any complaint from my club patients, so I trust my estimate is as it should be. If my estimate is more than can be raised as a levy the societies must pay what they can in the form of a dividend towards their members' doctor's bills, leaving the balance to the individual liability. After all said and done there is no inherent antagonism between the medical profession and the friendly societies. It is a matter for "collective bargaining" on businesslike lines, but unfortunately the collectivism has hitherto been all on the side of the societies and the ununited medical profession has been individually a sufferer in consequence.

I am, Sirs, yours faithfully,

BASIL W. HOUSMAN, F.R.C.S. Eng.

Stockport, April 28th, 1902.

THE NEW SYDENHAM SOCIETY'S CLINICAL ATLAS OF MEDICINE AND SURGERY.

To the Editors of THE LANCET.

SIRS,—Arrangements are being made to publish as early as practicable a fasciculus illustrating the effects of arsenic in producing affections of the skin, &c. The subject is one of great interest at present and likely to become of yet more.

Will you permit me through your pages to ask those of your readers who may chance to possess original drawings illustrating these conditions to do our council the favour of allowing us to inspect them? They may be sent either to the Museum at the Polyclinic, 22, Chenies-street, or to myself, and will be taken good care of.

I am, Sirs, yours faithfully,

JONATHAN HUTCHINSON,
Honorary Secretary of the New Sydenham Society.

15, Cavendish-square, W., May 7th, 1902.

CARDIAC INADEQUACY.

To the Editors of THE LANCET.

SIRS,—It certainly seems paradoxical to suggest that a man may die from cardiac failure without cardiac dilatation—with contracted hypertrophy and not dilated hypertrophy, but the facts of the case in the first of the two instances which I adduced do not seem to bear any other interpretation. The patient had, at least after death, a small heart with hypertrophied walls and relatively small cavities. His liver was enlarged and *without* interstitial cirrhotic change. His kidneys were large and certainly had, according to the pathologist's report, adherent capsules but were not examined microscopically and during life the patient's urine was of high specific gravity and showed no albumin. Sphygmograms taken periodically and carefully by a most efficient resident physician—Dr. A. Whitmore—showed a progressive fall in the force of ventricular systole after a temporary rally when the patient was first admitted to hospital and relieved of the burden of ascites. To the second case which I recorded, as Dr. H. Campbell perceives, I do not attach the same value, although I consider that the small heart even here added to the general embarrassment of the patient. It is the paradoxical element in the situation which adds to its interest. If Dr. Campbell can suggest any more satisfactory solution to the conditions involved and convict me of error I shall be the first to acknowledge myself in fault, but I confess I cannot see my way to doing so at present.

I am, Sirs, yours faithfully,

May 4th, 1902. ALEXANDER MORISON.

LARGE DOSES OF STRYCHNINE IN SURGICAL SHOCK.

To the Editors of THE LANCET.

SIRS,—Dr. Gordon Sharp has failed, in his letter in THE LANCET of April 26th, p. 1210, to distinguish between the effects of 50 minims of liquor strychninæ introduced in one dose into the circulation of a non-collapsed patient and the effects of the same amount divided into smaller doses and administered at intervals of 15 minutes to a patient in a state of collapse. In practice this difference is very marked. In the case referred to by Dr. Sharp the total amount administered was 50 minims of the liquor given in the space of one and a half hours, not 70 minims in three hours.

Dr. Sharp asks: "Do the surgeons never find disagreeable tonic and clonic spasms of the muscles of the extremities remaining after the effect of the anæsthetic has passed off?" These inconveniences have, in my experience, been conspicuous by their absence, but in the event of their appearing they would be very preferable to death of the patient from heart failure. The theory of the terrific spasms which ought to occur is perfect but it would have more weight if backed by details of a few cases in which these fearful after-results have actually appeared. Doubtless Dr. Sharp can supply

such. Symptoms of poisoning following a single large dose of strychnine in a healthy patient are well known but have no bearing on the point at issue. The following case which has occurred since my last letter is a further instance of the value of strychnine in large doses in threatened death from heart failure.

A man, aged 49 years, with obstruction of five days' standing and stercoraceous vomiting, had cœliotomy performed. For the first half hour local anæsthesia by eucaine was employed, but a more extensive operation becoming necessary I administered ether and oxygen from a Rumbold-Burch inhaler during the last hour only in sufficient quantities to keep the patient partially anæsthetised. During the first half hour the pulse was small; the rate was 110. Coincidently with the administration of the general anæsthetic the pulse became very small and rapid; the rate was about 160 during the last hour. I injected into the pectoral muscles at intervals of about 10 minutes the following doses of liquor strychninæ (made up to 1 in 100), two doses of 10 minims and three doses of 15 minims, the patient getting 65 minims of liquor strychninæ (1 in 100) in the course of one hour. This, with intravenous injection of two and a half pints of saline solution in which was half an ounce of brandy, produced a pulse of good volume, with a rate of 100, at the end of the operation. No twitching or spasms occurred either during or after the operation. The patient lived for nine days.

I am, Sirs, yours faithfully,

Plymouth, April 27th, 1902. C. HAMILTON WHITEFORD.

To the Editors of THE LANCET.

SIRS,—The use of large doses of strychnine in the treatment of surgical shock was first advocated by me upwards of three years ago in a paper read before the Leeds Medico-Chirurgical Society and illustrated by a series of cases. A brief record of the paper may be found in THE LANCET of Dec. 17th, 1898, p. 1636. The paper was subsequently published *in extenso* in the *British Medical Journal* of Nov. 25th, 1899. Since that publication appeared I have used strychnine freely whenever death from shock has been threatening and more especially during operations for what may be conveniently termed "peritoneal catastrophes." I am in the habit of injecting 10 or 15 minims as a first dose, continuing to give 10 minims hypodermically whenever the pulse shows signs of failing. I have given 40 minims during an operation in this manner in a case of extreme collapse.

After four years' experience both in private and hospital surgical practice I can say that I have never once been able to detect the slightest sign of poisoning, either immediate or remote, in any case in which I have used strychnine. I can therefore only reassert my original statement that in conditions of extreme shock patients will tolerate very large doses of strychnine and that when given boldly under such circumstances it is a valuable remedy.

As I almost invariably use ether as an anæsthetic the antagonistic action of chloroform can scarcely be a factor in this toleration of the drug. Moreover, I have given large doses of strychnine in cases in which practically no general anæsthesia was used. The toleration of strychnine in the collapse following snake-bite was pointed out more than 10 years ago by Mueller, who advocated the use of the drug as an antidote, and cases in which very large doses have been given have been recorded from time to time. It was chiefly due to a knowledge of some of these cases that led me to apply the treatment in surgical practice. I am no advocate for giving dangerous doses of strychnine prior to operation where shock is not already present, although a reasonable dose by acting as a general respiratory and circulatory stimulant is an obviously rational preparation for a severe operation.

Until we have some explanation of this peculiar tolerance in shock it behoves us all always to realise fully the grave responsibility which we incur in pushing the drug to dangerous limits, even in desperate cases. At the same time the experience not only of myself but also of other surgeons has undoubtedly established the fact that these large doses can be used with good effect in cases of extreme shock and without producing symptoms of poisoning.

I am, Sirs, yours faithfully,

Bradford, April 28th, 1902. J. BASIL HALL.

To the Editors of THE LANCET.

SIRS,—That the large doses of strychnine advocated by Mr. Mayo Robson and Mr. C. Hamilton Whiteford are not entirely without danger I can testify from an experience I had when house surgeon in a provincial hospital. A boy, aged six years, was admitted at 6 P.M. with the history of having swallowed and then vomited the tin socket of a small Chinese lantern. On admission the boy seemed well and had no pain, but at 2 A.M. the following morning he became suddenly collapsed, with all the symptoms of perforation of the stomach. At 4 A.M. he was given five minims of liquor strychninæ hypodermically, was anæsthetised with chloroform and the abdomen opened; a small perforation was discovered on the anterior surface of the pylorus (this had evidently occurred some hours previously and had been temporarily closed by lymph) and closed with sutures. During the operation the patient's condition became extremely critical from heart failure, but five minims of liquor strychninæ were injected, the operation was rapidly completed, four pints of saline solution were transfused into the median basilic vein, and the patient left the operating table with a good pulse. At 8.30 the boy was seized with convulsions and rapidly passed into a condition of opisthotonos and died before chloroform could be administered.

I am, Sirs, yours faithfully,

Lincoln, May 5th, 1902. A. STANLEY GREEN.

INFANTILE SCURVY AND RICKETS.

To the Editors of THE LANCET.

SIRS,—In the letter which I wrote to you on "Unboiled *versus* Boiled Milk" and which you published in THE LANCET of June 29th, 1901, p. 1859, I pointed out that there was some alteration effected by the boiling which was deleterious to the nutrition, growth, and health of some of, and probably to some extent of all, the unfortunate infants who are "brought up" on this artificially prepared milk, as against milk in its natural state. I also pointed out that the same facts applied to that series of artificial foods prepared with sterilised or boiled milk, which are so excellent as temporary substitutes for "fresh" milk for a few weeks where, as on board ship, or in hot weather, or from illness, fresh milk is difficult to obtain or deteriorates before it can be consumed, and so disagrees. The same milk-defects also arise when the mother's milk has deteriorated from prolonged or over-lactation. The storm which my letter created made me raise the question in my own mind whether it was not expedient for me to consult an alienist.

The excellent paper which has appeared in THE LANCET of May 3rd, 1902, p. 1246, by Dr. George Carpenter has, however, set my mind at rest on that score, for he says, and I agree with him: "That a diet of sterilised milk, simple boiled milk, pasteurised milk, pasteurised percentage milk mixtures, peptonised milk, condensed milks, malted milks, desiccated milks, the numerous proprietary foods, and cereal gruels combined with the above milk preparations, each in turn or in combination, has produced scurvy in those prone to that disorder, though harmless in that respect to others." I only wish that he had completed the sentence which I have quoted by adding that where "fresh" milk is given to infants and young children infantile scurvy never arises and rickets rarely where the hygienic conditions of the child are as they should be.—I am, Sirs, yours faithfully,

CLEMENT DUKES, M.D., F.R.C.P. Lond.

Rugby, May 6th, 1902.

CHYLOUS HYDROCELE.

To the Editors of THE LANCET.

SIRS,—The following may be of interest owing to its rarity of occurrence. A Hindoo came into hospital with a large hydrocele which was not very translucent. On tapping the fluid was found to be milky in colour, suggesting at first that there might be some fistula of the testicle communicating with the sac and that the fluid was mixed with seminal fluid. On microscopical examination the field was full of fat droplets coated with an albuminous film in a clear liquid. There were one or two cholesterine crystals; no spermatozoa were present. I have searched a large number of recent large systems on surgery but I find no mention of this condition except in that of Holmes and Hulke (vol. iii., p. 480), who quote one or two cases from M. Vidal and from the Transactions of the Pathological Society of London, vol. xvi., p. 184. The fluid was unfortunately thrown away contrary to my orders, so that the specific gravity was not recorded.

I am, Sirs, yours faithfully,

J. RUTTER WILLIAMSON, M.B., Ch.B. Edin.

Mission Hospital, Miraj, Western India, March 20th, 1902.

THE APPROACHING ELECTIONS AT EPSOM COLLEGE.

To the Editors of THE LANCET.

SIRS,—May I express the hope that those who have not already pledged themselves in favour of one or other of the candidates will carefully read the lists just issued and vote *only* for those whose husbands or fathers have themselves subscribed? Year after year an urgent appeal is made to the profession for greater pecuniary support and yet it frequently happens that the claims of some of those who have responded to these appeals in the past are ignored in the list of candidates recommended by the Council. It should, I think, be made quite clear in every possible way and upon all occasions that subscribers to the College have a primary claim upon its benefits should necessity arise and only when the dependents of past subscribers have been provided for will the claims of others be considered; I do not otherwise see upon what practical grounds the appeal can be made. This, I think, must be the view of many of my professional brethren. I do not know how otherwise to explain the very striking anomaly presented by this year's list, for of 55 candidates apparently only five were former subscribers!

I am, Sirs, yours faithfully,

London, May 5th, 1902. LIFE GOVERNOR.

THE GERMAN SURGICAL CONGRESS.

(FROM OUR BERLIN CORRESPONDENT.)

(*Concluded from page 1283.*)

Histogenesis of Cancer.

PROFESSOR GUSSENBAUER (Vienna) said that his clinical experience had persuaded him of the parasitic nature of the cancer virus. He had endeavoured to study its action by taking a large number of microscopical sections from the tissues lying outside the borders of the growths where the virus was likely to have acted without producing manifest symptoms and he had discovered that a general proliferation of cells was present there.

Professor KAHLDEN (Freiburg) discussed the etiology of relapses in cancer. They, he said, might originate from parasites of the growth which had not been removed at the operation. They might also be caused by thrombosis of the lymphatic vessels or by direct infection. Inoculation of the healthy tissue by the instruments used during operation was also possible. The growth might also from the beginning develop at different places and at different times.

Dr. PETERSEN drew attention to the fact that the micro-organisms detected in cancer were always in symbiosis with the cells. Relapsing growths always arose from the epithelium of the organ first attacked, either as real relapses unconnected with the first growth, in some degree like a newly-formed tumour, or indirectly as a continuation of the original growth. A parasitic etiology was not yet established.

Dr. NÖSKE (Leipsic) said that none of the parasites hitherto detected in cancer had been proved to have a causative relation to the disease. He had found Mr. H. G. Plimmer's corpuscles in non-malignant growths.

Dr. DOYEN (Paris) showed specimens of a "micrococcus neoformans" which was present in cancer, the number of the micrococci corresponding with the malignancy of the growth.

Cancer of Various Organs.

Professor MIKULICZ (Breslau) said that apart from cancer of the rectum he had seen 106 cases of malignant growth of the intestines, of which 100 were cancer, five were sarcoma, and one was endothelioma. More than 80 per cent. occurred in men, the sites of predilection being the sigmoid flexure and the cæcum. They might be latent for a rather long time. When stenosis happened the prognosis varied according to the acuteness of the symptoms; in acute cases colostomy was the only available operation. Resection of the intestines was performed in 37 cases. In 21 cases the operation was completed at one sitting and among these patients there were nine deaths; in 16 cases he operated in two successive stages with only two deaths.

Dr. VON HOCHENEGG (Vienna) reported that of 174 cases of cancer of the rectum operated on by him 30 remained free from relapse three years after the operation. He used the sacral method exclusively and operated in two stages, first performing a colostomy and eight days later the resection.

Professor KRÖNLEIN (Zürich) gave an account of 264 cases of cancer of the stomach of which 197 were operated on. In 251 instances he succeeded in obtaining a detailed history of the case from beginning to end. On an average the disease proved fatal after a duration of one year. Life was prolonged by gastro-enterostomy for about three months and by gastrectomy for about 14 months. Of the latter cases 13 might probably be regarded as definitely cured, one patient surviving for eight years, one for four years, and the remainder for periods varying from three years to one year after the operation. Professor Krönlein, however, remarked that relapses after a comparatively long time were not rare, so that a definite cure must not be announced too soon. The results would be still better when operation for cancer of the stomach became more popular with the medical profession as well as with the general public. At present patients were sent to the surgeon as a rule in far too advanced a stage.

Abdominal Surgery.

Professor KÖRTE (Berlin) gave details of 60 subphrenic abscesses originating from appendicitis, gastric and duodenal ulcers, gall-stones, &c. In 41 cases a transpleural operation was performed; in 16 instances he made an incision through the ribs and in four cases a median incision. 66 per cent. of the patients recovered.

Professor SPRENGEL (Brunswick) said that he had made a collective investigation of 516 operations for appendicitis, of which 284 were performed during an attack, the result being 20 deaths. Of 232 patients operated on during an interval only two died. He strongly recommended operating early and very soon after the first attacks, before the peritoneum was likely to have become seriously affected.

Professor ROUX (Lausanne) warned his hearers against operating during an attack of appendicitis; in most cases no harm was done by waiting for five or six weeks. When an operation during an attack could not be postponed owing to the state of the patient then a mere incision into the abscess was sufficient.

Dr. DOYEN said that in general peritonitis he recommended early incisions and a "toilette" of the abdominal cavity without washing the peritoneum. Where paralysis of the intestines had developed a temporary colotomy was advisable.

Professor FRIEDRICH (Leipsic) explained that in general peritonitis anaerobic bacteria were present and that the admission of air into the peritoneal cavity when incisions were made might destroy these bacteria.

Professor KOCHER read a paper on Peptic Ulcers subsequent to Gastro-jejunostomy. They were not always of traumatic origin but might occur after several months or even years owing to the action of the gastric juice on the jejunum. It was not yet ascertained whether this complication was more frequent after anterior or posterior gastro-enterostomy. Professor Kocher had once excised the ulcer, the intestine being adherent to the abdominal wall.

Professor HAHN said that if the frequency of this complication was the same after both anterior and posterior gastro-enterostomy the anterior operation should be performed to the exclusion of the other, because it allowed an eventual excision of the ulcer.

Dr. KAUSCH said that if this complication were more frequent gastro-enterostomy would have to be abandoned for pyloroplasty.

Cryoscopy of the Urine.

Dr. KÜMMELL (Hamburg) drew attention to the value of cryoscopy of the urine as a trustworthy means of ascertaining the relative efficiency of the kidneys. Cryoscopy meant the determination of the freezing-point of a liquid. The freezing-point of normal urine was about − 0·56° C.; if it rose slightly the function of the kidney was likely to be abnormal. The important conclusions submitted to the Congress last year by Dr. W. Kümmell and by Dr. Casper of Berlin had now been confirmed by the result of several operations.

Among the other papers read before the Congress mention may be made of those dealing with operations on the brain by Professor REHN (Frankfurt), Dr. THIEM (Cottbus), and Dr. SAENGER (Hamburg).—Papers were also read by Dr. DE QUERVAIN (Chaux-de-Fonds) on Acute Thyroiditis, by Professor KÜSTER on Œsophagotomy, by Dr. TAVEL on Anti-streptococcic Serum, by Dr. BUNGE on Talma's Operation, by Dr. REERINK on Plastic Operations on the Stomach.—On the evening of the first day of the Congress demonstrations

with the diascope and the kinematograph were given.—Dr. JOACHIMSTHAL showed photographs of the structure of the patella and Dr. PERTHES showed photographs of the feet of Chinese women.—The representation of Dr. DOYEN'S operations by means of the kinematograph was a remarkable spectacle. He showed the operation of trephining, a resection of the knee-joint, an ovariotomy, and finally his famous operation for the separation of the xiphopagous Hindoo girls. The different stages of the operation were quite visible though the small size of the photographic pictures made it impossible to discern the anatomical details.

Professor KUSTER (Marburg) was elected President of next year's Congress.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

The Pasteur Institute at Kasauli.—Slight Decline in Plague Mortality.—Improvements in Madras.—Dengue Fever in Rangoon.—Model Dwellings in Calcutta.

THE work done at the Kasauli Institute has been satisfactory and successful beyond expectation. During the past eight months 352 persons have been treated for bites of rabid animals. Of this number 126 were Europeans and 226 were natives. There were eight British officers and 48 British soldiers, besides 28 men of the native army and there were 61 European civilians and 198 native civilians. Since the institution was opened in August, 1900, practically every European who has been bitten by a mad animal has attended for treatment so that no increase of patients from the European population of India is expected, but the institution is rapidly gaining in popularity amongst the natives. It is very satisfactory to find that every European patient has been successfully treated. Natives as a rule are severely bitten and often by mad jackals and they delay in their attendance for treatment. Notwithstanding this the failures among natives amount to only 0·8 per cent. These results will be considered eminently satisfactory and it is expected that this year's results will surpass those of the Paris Institute. As the Government necessarily saves the cost of sending British soldiers to Paris it is anticipated that a larger vote of money will be now granted.

The plague figures for the week have been delayed but local returns show a general decline. Karachi is still severely oppressed but there are signs of diminution both in Bombay and in Calcutta. In neither city has the outbreak been so severe this season and in Bengal it has been quite abortive in character. In the circumstances it is impossible to draw any conclusions as to the success of sanitary measures. Bombay must have been pretty well soaked with disinfectants and Calcutta has absorbed tons of perchloride of mercury. The difference between the two cities appears to be that in Calcutta except for the plague the population seems to be fairly healthy, whereas in Bombay over and above the plague there is a very high mortality.

Those who know Madras will be glad to hear of the improvements which are to be made in Black Town. The old general market is to disappear and it will be converted into a recreation ground and garden.

Dengue fever is still raging in Rangoon and one fatal case has occurred.

The opening of a block of model dwellings for the poor in Calcutta is an experiment of great value. The present poorer dwellings are mostly single-storeyed and cover a large area. In this way they differ very greatly from the *chauls* of Bombay. The block in question contains about 67 rooms, each 12 feet square; it is well ventilated, well paved, and provided with satisfactory sanitary appliances. The difficulty seems to be that masonry dwellings cannot be constructed to provide for the requirements of sanitation as well as to furnish an adequate interest on the money invested, and the rents, therefore, may prove prohibitive to the very classes for which these dwellings were intended. Moreover, even if occupied there is the danger that the crowding may become as excessive as it is in Bombay where between four and five people on the average occupy single-room tenements. At present even in the wattle-and-daub mud huts, which admit considerable ventilation, the crowding at night-time, especially in the cooler seasons, is excessive and the air is very offensive. The present venture is a private one on the part of some wealthy natives. As habitations these model dwellings are excellent and if they should not prove financially successful I still think that the corporation ought to provide further blocks in the public interest. In the *bustis* of Calcutta the surroundings of the huts are so filthy that overcrowding greatly intensifies the insanitary conditions.

Calcutta, April 17th.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

The Sanitary Congress in Manchester.

THE jubilee of the Manchester and Salford Sanitary Association was celebrated very successfully on April 24th and 25th. At the opening meeting the Lord Mayor of Manchester (Mr. Alderman Hoy) cordially welcomed the members and, what is important and encouraging for the future, bestowed on the association the municipal blessing. The Bishop of Manchester, as President, delivered an inaugural address marked by the sound robust sense characteristic of his utterances. Dr. Ransome gave an interesting historical sketch of the origin and work of the association, while Sir James Crichton Browne held the audience wrapt in the closest attention during his most eloquent and picturesque address on light and sanitation. In the afternoon Mrs. H. J. Tennant, late chief woman inspector of factories, read the opening paper in the afternoon on Women's Work in Sanitary Reform, and said that in the prevention of infant mortality due to ignorance or neglect on the part of parents there were "splendid possibilities for women workers." In the discussion which followed Mr. D. B. Hewitt, chairman of the Public Health Committee of the Cheshire County Council gave a lamentable account of the mortality among infants, 200 to 300 per 1000, in some of the smaller towns of Cheshire. Dr. H. Simpson emphasised the importance of practical educational work in sanitary reform and Sir J. Crichton Browne spoke of the importance of women's work in bringing home to the people the need of obedience to the laws of health. Dr. A. Newsholme next read a paper on Vital Statistics and their Relation to Sanitary Reform. This was followed by one from Mr. Horsfall on the Housing Question in which he gave interesting details of the arrangements in German towns. The ideal city would, no doubt, be a less unlovely and a healthier one than any we now have, but the cost would place it at present beyond the limits of the practical. The interest in the meetings was well maintained and a good and attentive audience met on the 25th to hear Sir William Broadbent's clear and philosophical address on the Prevention of Tuberculosis. He was followed by Professor A. Bostock Hill who read a valuable and suggestive paper on the Relationship of Voluntary Effort to Constituted Authority in Promoting Sanitary Reform. After luncheon a paper was read for the Earl of Meath, who was unavoidably absent, on Physical Training, the necessity of which is evident to those who see the rapid deterioration of race going on in our large towns. A paper was also read for Mr. Ralph Neville, K.C., on Garden Cities, and the literary part of the conference was closed by Dr. J. Niven, medical officer of health of Manchester, who contributed a paper on the Economics of Health. The conference excited a good deal of interest and it is to be hoped that it will lead to an increase of membership and thus yield increased power for good. On the Thursday evening the Lord Mayor and the Lady Mayoress held a reception at the town hall and on the Friday evening a banquet took place at the Queen's Hotel which was presided over by Professor J. Dixon Mann, the chairman of the committee of the association.

Care of Defective Children.

The first special school for weak-minded children in Manchester was opened about a month since in Hulme. An inspection of 39,600 board school children made three years ago showed that 525 seemed more or less unable to compete with other children in the ordinary classes. Of the 525, 214 were "dull and backward," 276 were "mentally feeble," four were "deaf-mutes," while six were not so backward as to need special attention. At first the school board started special classes. Now there is a special school in Hulme, there will soon be a second school in North Manchester, and a third school will be required shortly. School training is only part of the work, and after school days care is needed. Helplessness falls an easy prey and the story of weakness may be carried into another generation. This points to the remedy being permanent, such as retention in special homes where they may live securely and do more

or less useful work. The Lancashire and Cheshire Society for the Permanent Care of the Feeble-minded has made a beginning of this work. A boarding-school for 15 boys and one for 15 girls have been built at Sandlebridge near Alderley, and this will after a time be completed by the addition of two more schools—for adults and for infants. Salford, however, can claim priority over Manchester in making provision for "deficient children," having had a school for them which began its work more than two years ago. The building is inconvenient and a graveyard serves as a playground, but the teaching is efficient and in June the children are sent to Mellor in Derbyshire for bracing country air for a week. The teaching in the Manchester school is individualised as much as possible. The brain-work comes in the morning while the children are freshest. There are Scripture reading and some simple normal lesson. A good deal is done in the way of "nature teaching"—e.g., in one class a visitor found the children eagerly examining a bottle of tadpoles and making remarks thereupon. They are talked to on matters of general interest. Few of them can speak well and daily lessons in articulation are given. In the afternoon the training is on kindergarten lines for they require training of their senses and of their muscles much more than do ordinary school-children. There is a good deal of play and pleasant drilling. In this way something is done to improve the lot of these unfortunate ones.

Recruiting in Manchester.

If anything were needed to show the serious deterioration going on as to the physique of our town population the recruiting returns for Manchester would probably serve. Some three years ago it was stated that of 11,000 men examined—in round numbers—only about 3000 were fit for the service. In 1900 the number of applicants examined was 12,235 and of these 4030 were fit to serve. Within the last 12 months 11,896 men were examined and of these only 3076 were accepted for service. Those rejected were for the most part so ill-developed and poor in physique that it was impossible to take them though the authorities were anxious to accept as many as possible. The standard is now lower than it has ever been. A minimum chest measurement at full expansion of 33½ inches and a minimum height of five feet three inches are sufficient. The Manchester applicants for enlistment are many of them youths of 18 or 19 years of age and are average specimens of those living in the poorer quarters of the city. It is said that instead of 33½ inches the chest measurement of many young fellows of the age of 18 years is only 28 or 29 inches and they are undersized in proportion. The recruiting officers believe that one principal cause for this miserable want of physique is the habit of cigarette-smoking by youths. "They come to us with their fingers stained with cigarettes and nearly all of them are suffering more or less from palpitation of the heart," and the looked-for remedy is considered to be compulsory physical training in all elementary schools. Cigarette-smoking, no doubt, is an important factor, but not the only one, while its influence is undoubtedly much exaggerated. Born and brought up in the vitiated atmosphere of a town slum, in a crowded and generally miserable and uncleanly tenement, with all inlets for the outer air carefully closed at nights, unsuitably fed as an infant, and insufficiently and often unwholesomely fed when he ought to have been a growing youth, the stunted, ill-developed figure and the feeble muscles of this product of one of the phases of our civilisation cannot cause surprise. Nor can a high morale be reasonably anticipated. There is a great deal said on the need for technical education, but an even greater need for the nation is that our boys and girls shall grow up with sound bodies, when there will be good chance of their having sound minds.

May 6th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

The Prevention of Spitting.

IT already has been stated in THE LANCET[1] that a by-law prohibiting spitting can be made by a county council in fulfilment of the powers given by the Local Government Act, 1888, to make by-laws for "the good rule and government of their county." The County Council of Radnorshire has now adopted a by-law identical with that which is in force in Glamorganshire and which entails a penalty of £5 upon any person who spits upon the floor of a public carriage, church, school, public hall, &c. There was practically no opposition to the adoption of this by-law by the county council and one speaker urged as a reason in favour of the proposal that many consumptives came to the Welsh Wells and that if people were not suffering from consumption spitting was a dirty habit and a small fine would do them good.

[1] THE LANCET, March 22nd, 1902, p. 851.

Foreign Lunatics at Seaports.

The Asylums Committee of the Cardiff Corporation is concerned at the increasing cost to the corporation of maintaining foreign lunatics. The average annual cost during the past five years has been £317, but it has increased from £109 in 1898 to £636 in the present year. There does not appear to be any connexion between this increase and the number of foreign vessels putting in to the port, for in 1897 the number of such vessels calling at Cardiff was 3174, while in 1901 only 2829 put in. The Asylums Committee has decided to bring the matter before the authorities of other seaport towns with a view to securing joint action in a representation to the Lunacy Commissioners in order, if possible, to secure an alteration in the present law.

Madame Patti at Brecon.

A concert in aid of the funds of the Brecon County and Borough Infirmary is to be given in September next by the Baroness Cederstrom (Madame Patti). The infirmary was founded in the year 1833 and contains 16 beds. Madame Patti has once before, in 1885, given a concert in support of the infirmary.

The Prevention of Tuberculosis.

When the South Wales and Monmouthshire Branch of the National Association for the Prevention of Consumption and Other Forms of Tuberculosis was inaugurated in Cardiff last year one of the avowed objects of the branch was the establishment of a sanatorium, and at a meeting held on May 3rd it was decided to take immediate steps to promote the erection of such an institution to serve the needs of Glamorganshire and Monmouthshire. These two counties have populations of 880,000 and 300,000 respectively. In the former county, where 7 per cent. of all the deaths registered are due to consumption, the phthisis-rate is 1·2 per 1000 and there are about 1000 deaths annually from the disease. In Monmouthshire the phthisis death-rate of 1 per 1000 is among the lowest in the kingdom, and there are about 300 deaths from phthisis annually, or a number equal to 6 per cent. of the deaths from all causes. At the meeting referred to Dr. W. Mitchell Stevens pointed out that the lot of the poor consumptive was a most unenviable one, for since consumption had been recognised so strongly as being an infectious disease the general hospital was closed against him. Dr. Stevens urged that not only the early, but the more advanced, cases should be looked after, as it was from these that the danger of the spread of infection specially arose.

Sanitary Condition of Merthyr Tydvil.

Until less than 30 years ago Merthyr Tydvil was by far the most considerable town within the principality of Wales and it is only during the past quarter of a century that it has been outstripped by Cardiff, where in 1851 the population was only 18,000 while in Merthyr it was nearly 47,000. At the last census the population of Cardiff was 164,000 and that of Merthyr was 69 000. The insanitary condition of Merthyr, with its resultant high death-rate, has been the subject of many inquiries by inspectors of the Privy Council and of the Local Government Board, and as a result of their reports and recommendations the sanitary authority has of late years bestirred itself to improve the condition of the town and has thus endeavoured to lower the rate of mortality. Dr. William Williams (the medical officer of health for the county of Glamorgan), in his sanitary survey of the county, states that as long ago as 1854 Dr. William Kay, who was temporarily appointed health officer in 1852, concluded a report thus: "The unhealthiness of Merthyr Tydvil is attributable to local and self-created conditions, the vicious construction of houses, the inadequate water-supply, the absence of drainage, and the necessary consequence—accumulations of filth, atmospheric impurity, and excessive and fatal prevalence of disease." As an index to the activity displayed by the urban district council and its predecessor the local board

of health it is of interest to quote from the recently issued report to the district council of the present medical officer of health, Mr. D. J. Thomas, in which he says: "You have one of the best water-supplies in the kingdom. Not only is the supply good in quality but there is a sufficiency of it. You have spent vast sums of money to obtain a system of sewage disposal which is at once clean and efficient." The death-rate, however, is still high. In 1901 it was 25·9 per 1000, and in one district of the town—Dowlais—the death-rate was over 33 per 1000, although it is situated at an elevation in some parts of 1760 feet, while nowhere is it less than 800 feet above sea-level. During the past 10 years the death-rate of Merthyr has never been below 20 per 1000 and in one year it was over 30 per 1000. The infantile mortality rate in 1901 was equal to 261 per 1000 births. In Mr. Thomas's opinion there are two causes operating towards the high death-rate which overshadow all others—the conditions under which the poorer people are housed and the ignorance displayed by mothers in the rearing of infants.

Verdict of Manslaughter for Improper Feeding of a Child.

At an inquest held on May 1st at Bristol a coroner's jury returned a verdict of "Manslaughter" against a woman whose child had died from convulsions and bronchitis accelerated by improper feeding. It was stated in the course of the inquiry that the child had been fed upon condensed skim milk, which cost 2½*d.* per tin, and upon boiled bread.

Small-pox.

There are now two cases of small-pox at Aberdare. There are no fresh cases in the Rhondda Valley; the man who was infected from Aberdare died on May 1st. There is a case of the disease in the Newport Hospital, the patient being the engineer of a steam yacht from which a case had been removed at Gibraltar.

Vaccination at Helston.

At the meeting of the Helston (Cornwall) Board of Guardians held on April 12th it was decided to open stations for the purposes of revaccination. It was reported that the cost of revaccination and the primary vaccination of adults for the past three months amounted to £129. A communication was read from the Local Government Board in answer to a letter from the guardians drawing attention to some vaccination posters issued by the Helston Borough Council as the local sanitary authority, and to which the guardians objected as they considered that the posters had been signed by the public vaccinator. The Local Government Board, however, stated that the notices could not be regarded as signed by the public vaccinator and that it did not feel called upon to make any observations upon the matter.

May 5th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Aberdeen University.

THE session commenced on April 29th. The Senatus met in Marischal College on April 30th, Professor Stephenson presiding in the absence of Principal Lang. The business was of a routine nature. The Court agreed to change the date of meeting from Saturday to another day of the week as an experiment. An address in German was received from Professor Virchow of Berlin in acknowledgment of the congratulations which the University had presented to him on the occasion of his eightieth birthday. It will be remembered that in addition to its congratulations the Senatus conferred on Professor Virchow the honorary degree of LL.D.

The Admission of Medical Students to Aberdeen University.

A new by-law regulating the admission of medical students to Aberdeen University has come into force whereby no student under 16 years of age is admitted. A certificate of birth has to be produced by applicants for registration.

Obituary.

Jeannie Charlotte MacLeod, M.B., Ch.B., L.L.A., resident physician and surgeon at the Royal Hospital for Sick Children, Aberdeen, died there suddenly on May 2nd. She graduated only last month at Aberdeen University and entered on the above appointment one week before her death.

May 6th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Convocation of the Royal University of Ireland.

ON May 9th the contest will take place for six representatives of Convocation on the Senate of the Royal University of Ireland. There are nine candidates in the field, and considerable interest is being taken in the fight which is being waged with great vigour. At a meeting of the Roman Catholic members of Convocation residing in Dublin on April 27th in the Catholic University it was unanimously decided to recommend the Roman Catholic members of Convocation to vote for two candidates—Mr. M. Drummond, M.A., K.C., of Dublin, and Dr. J. Cotter of Cork—both of whom are Roman Catholics. The Royal University Graduates Association, whose headquarters are in Belfast, has issued a circular in support of Mr. A. Anderson, M.A., President of Queen's College, Galway, Dr. Walton Brown (Belfast), Mr. E. Cuming, M.A. (Dublin), Rev. Professor Leitch, D.Lit. (Belfast), His Honour Judge Shaw, LL.D. (Dublin), and Professor Sinclair, M.D., of Belfast. This association in its circular urges that the question of extern examiners is the burning one in the present contest, their appointment being of cardinal importance in all the faculties but of vital importance in the medical faculty. It is opposing Sir W. Thomson, M.A., M.D. R.U.I., another candidate living in Dublin whom it regards as not sound on this question.

Royal Commission on University Education in Ireland.

The next meeting of this Commission is to begin in London on May 20th and it is believed that the following among others will be examined: Dr. Anthony Traill, Fellow of Trinity College, Dublin; the Right Hon. Lord Justice Fitzgibbon; Rev. Professor Todd Martin, D.Lit.; Archbishop Walsh; and Mr. F. H. O'Connell, M.A. After a few days' sittings the Commission will sit again in Dublin in June when the final report will be drawn up.

Royal Victoria Eye and Ear Hospital, Dublin.

Referring to some statements which have appeared in letters to public journals suggesting that extravagance is not infrequent in the management of hospitals and that the subscribers have a right to know precisely what is done with their money, the council of the Royal Victoria Eye and Ear Hospital, Dublin, at its last meeting requested the honorary president and honorary treasurer to court the fullest investigation from the public as far as its institution was concerned. A very interesting letter appeared accordingly in the *Irish Times* of April 26th, signed by Lord Monk and Mr. Mark Perrin, giving some details as regards the expenses of management, diet, &c., of the hospital. Among other statements the letter contains the following: "Our patients get food of the best quality, well cooked, and as much of it as they can eat; your correspondent and others will be surprised to learn that the cost of this ample, good, and comfortable dieting is very slightly over 6½*d.* per head per day, the entire cost of maintaining a bed for one year being £40 1*s.* 6*d.*, which includes drugs, foods, proportional cost of nurses' and servants' wages, fire and light, rent and taxes, laundry, and salaries." It occurs to me that if every hospital in Dublin supported by charity would furnish such a satisfactory record as the above there would be no further suggestion of extravagance or mismanagement in the public press. Since the above was written the admirable and business-like statement of Lord Monk has borne fruit. On May 1st it was announced in all the public journals that an anonymous donor had offered through his Grace the Most Rev. Dr. Peacocke, Archbishop of Dublin, the generous contribution of £1000 towards the building fund of this hospital on the condition that £4000 more be subscribed to the fund by Nov. 1st next. The council of the hospital has gratefully accepted this kind offer.

The late James Irvine, L.R.C.P. Edin., L.F.P.S. Glasg.

I regret to announce the death of Mr. James Irvine, which occurred at his residence, Lonsdale, Belmont, Belfast, on April 29th. His death was not unexpected as he had for some time been in ailing health and was unfit for work. As a student Mr. Irvine attended Queen's College, Belfast, and in 1867 he obtained the L.R.C.P. of Edinburgh and the L.F.P.S. of Glasgow. Mr. Irvine was dispensary medical officer of Castlereagh, No. 3 district, for 30 years

and during his long career enjoyed the confidence and gained the esteem of a large *clientèle*. A great favourite, his kindness, geniality, and sympathy gained him a large circle of personal friends. Mr. Irvine was buried on May 1st. He leaves a widow, four daughters, and two sons, one of whom, Mr. Hugh R. Irvine, succeeded his father a few years ago when through failing health he was obliged to resign his dispensary.

Small-pox in Belfast.

On April 30th a woman who had come from Liverpool on April 17th was admitted into the Union Hospital and on the following day symptoms of small-pox appeared. The case is a severe one. The patient from Glasgow, who developed the disease on coming to Belfast, has recovered.

The Belfast Hospital for Sick Children.

A collection, organised by the Belfast United Trades and Labour Council, was made on May 3rd on behalf of the Belfast Hospital for Sick Children when a large sum of money was the result.

Health of Belfast.

The annual death-rate between March 16th and April 19th was 22·7 per 1000, while in the corresponding part of last year it was 27·4. The death-rate is lower than in the report for the previous month and is specially low in the case of zymotic disease.

Benn Ulster Eye, Ear, and Throat Hospital.

At the annual meeting of the friends of this hospital, held on April 24th, it was reported that during the past year the number of patients under treatment in the hospital (of whom 463 continued in attendance from the previous year) was 1992, while 212 were received as intern patients. The board of management had decided to increase the charge of intern patients from 10*s.* to 15*s.* per week, with the result that the debt of the institution, which was £567 15*s.* 8*d.* at the beginning of the year, was reduced to £412 16*s.* 8*d.* at its close. The total income for the year was £870 8*s.* 1*d.*, and the expenditure was £715 9*s.* 1*d.* Dr. W. A. McKeown, surgeon to the hospital, said that his experience in Belfast and in Ulster in the last 20 years enabled him to say in relation to the work done by that and other hospitals, that the majority of the cases of diseases in young persons originated through defective hygienic conditions. He referred to the great help given to him in the work of the hospital by his experienced assistant, Dr. W. M. Killen.

Londonderry Eye, Ear, and Throat Hospital.

At the annual meeting of the friends and supporters of this hospital, held on April 24th, it was reported that there had been 1368 extern and 94 intern patients during the year ended March 31st, 1902. There had also been 1087 dental cases under the charge of Mr. E. Donaldson and Dr. W. B. Hunter. This hospital is doing excellent work for patients in Derry and the North-west of Ireland. It was decided to provide an apparatus for administering anæsthetics to the dental patients.

Down District Lunatic Asylum.

At a meeting of the committee of management of the Down District Lunatic Asylum, held on April 19th, it was announced by the resident medical superintendent that the contractors had commenced the work of the erection of the iron isolation hospital which will be a very necessary and most useful adjunct to the asylum.

North of Ireland Branch of the British Medical Association.

The spring meeting was held in the Belfast Museum on April 24th, the President, Dr. J. S. Darling (Lurgan) being in the chair. The president read notes of a case of Pernicious Anæmia developing in six weeks. Dr. J. St. Clair Boyd and Dr. J. Tennant read notes of cases of Extra-uterine Fœtation. Professor T. Sinclair reported upon a case of Simultaneous Appendicectomy and Transverse Colectomy ending in recovery. Dr. A. Dempsey showed specimens removed from two cases of Extra-uterine Fœtation successfully operated upon. Mr. Robert Campbell read notes of a case of Acute Intestinal Obstruction by a Band in an elderly woman and showed a specimen of a Peculiar Body in the Vermiform Appendix. Dr. W. Calwell read notes of (1) a case of Tetany in Dilatation of the Stomach; (2) a rare form of Relapse in Typhoid Fever and of a second attack after a few months interval; and (3) on the Nitro-propiol Test for Sugar in Urine based on 100 Examinations.

May 6th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Rats and Plague.

M. GAMALEIA of Odessa forwarded an interesting note to the Academy of Medicine which was communicated to that body by M. Proust. M. Gamaleia has found that important differences exist between the rats found in sewers and those found in houses. Sewer rats are very refractory to plague, or, at least, if they do contract it from eating carrion, they do not infect other rats. House rats, on the contrary, are those which are found also on board ship. They contract plague very easily and infect their fellows through the intermediary of fleas. M. Proust considers that the fact that the continent of Europe possesses more sewer rats than house rats is the reason why plague, starting from a port, spreads only slowly through the country, whereas it will spread from one ship to another very rapidly.

The Benefits of Tobacco.

Heretofore scarcely anything but the dangers of the use of tobacco have been insisted upon. But now a physician, Dr. Dumon, in a thesis for the degree of Doctor of Pharmacy, points out that tobacco is of great use to medical men and others who come into contact with those suffering from influenza, diphtheria, and tuberculosis. Dr. Dumon has studied the action of tobacco-smoke upon the various organisms found in the cavity of the mouth and has come to the following conclusions: Tobacco has no effect upon the development of the germs of typhoid fever or tetanus, but it greatly retards the growth of the bacilli of influenza, of diphtheria, and of tuberculosis. These experiments were made with definite cultures and Dr. Dumon is able to assert that the vapours of nicotine and pyridine which are produced by the burning of tobacco do render the buccal cavity more or less aseptic. The same fact has been noticed by dentists. Possibly, however, this advantage is somewhat counterbalanced by the chronic intoxication of the nervous system which is produced by smoking and by the irritation of the naso-pharynx which it sets up.

The Reorganisation of the Paris Hospitals.

The question of the reorganisation of the Paris hospitals has been under consideration for some three years. Many of the hospitals are by no means in accordance with modern requirements and should be pulled down. But, naturally enough, the enormous expense which such destruction and construction would involve stands in the way. The plan first proposed by the Prefect of the Seine in 1895 involved an expenditure of from 57,000,000 to 75,000,000 francs, according as to whether brick or stone were employed. The Municipal Council considers that to finish the three children's hospitals now building, to erect nine other new hospitals, and to pull down the old ones would require an expenditure of 105,000,000 francs. This figure, however, is too high. M. Lefevre, who has drawn up a report on the matter, proposes to rebuild on the sites which they now occupy the following hospitals: the Pitié, the Cochin, the Ricord, the Broca, and the Broussais, as well as to pull down the annexe of the Hôtel Dieu. He further proposes to rebuild one of the contagious hospitals and three general hospitals, to build a large central wash-house and laundry, to enlarge the Brevannes and the Rochefoucauld establishments, and to put the remaining hospitals in thorough repair. These works would require an expenditure of 75,000,000 francs. The Municipal Council recoiled from this enormous sum and the plan was rejected. M. Mourier, on the part of the Assistance Publique, then brought forward anew the proposal of M. Lefevre, with some modifications as follows: (1) to rebuild on their present sites the following hospitals—the Cochin, the Ricord, the Broca, and the Broussais, and to increase the total number of beds to 451; (2) to rebuild on different sites the following hospitals: the Pitié, the Laennec, the Charité, the Beaujon, and the Aubervilliers, with 557 additional beds; (3) to enlarge the annexe of the Hôtel Dieu and not to pull it down; (4) to build a new hospital for children suffering from tuberculous disease of the bones; (5) to enlarge the Hérold Hospital and that for Sick Children; (6) to enlarge the Brevannes and Rochefoucauld establishments so as to make 900 new beds; (7) to improve the wash-houses and laundries; (8) to do away with the present central dispensary and to rebuild it at Ivry; and (9) to put the remaining hospitals into thorough repair. By this scheme

nearly 2000 new beds would be established, of which number 1208 would be purely hospital beds. The total cost would be 83,000,000 francs, of which sum 29,000,000 francs would be provided by the sale of sites set free by the demolition of existing buildings.

May 6th.

EGYPT.

(FROM OUR OWN CORRESPONDENT.)

Cholera in the Hedjaz.

IT is extremely probable that all the different epidemics of cholera which have reached Egypt since the first visitation in 1831 have invariably been transmitted to this country from Arabia, the conveying hosts on most, if not all, occasions having been pilgrims returning from the holy places. Egypt is therefore always much interested in the progress of the disease in Mecca and Jeddah. It appears that the first cases occurred in Mecca about Feb. 20th of this year, but it was not until March 5th that the disease was officially declared to be cholera. Unfortunately for those who have to control the hordes of the returning faithful the pilgrimage to Mecca this year has been an extra large one, and it is calculated that about 40,000 of the pilgrims have come from northern countries. The present effort of the Egyptian quarantine authorities is to prevent all pilgrims from entering Egypt by any other way than that of El Tor, and also to take care that while at El Tor every pilgrim is thoroughly examined and is prevented from pursuing his journey towards Europe or into Egypt until he is considered to be incapable of carrying cholera with him. To prevent clandestine landing on the Red Sea coast from native boats Government steamers and land patrols are always watching, while the Suez Canal is being guarded by its own agents and by coastguard police.

The Camp at El Tor.

Boats from Suez take about 12 hours to reach El Tor, which is situated 120 miles to the south of Suez on the eastern coast of the Arabian Gulf. When the steamers conveying pilgrims reach El Tor the passengers disembark into large boats which are towed to three disinfecting stations. Each of these stations is divided into two parts, for men and for women. The clothes and luggage of each pilgrim are then put into sacks which are placed in the disinfectors, where they are subjected to a heat of 120° F. for 20 minutes. Any articles which would be spoilt by this heat are dipped into a sublimate solution. The steamer itself is thoroughly disinfected and the pilgrims themselves are conducted to a dressing-room connected with a bath-room where they have the choice of a cold or hot douche or a cold or hot sea-water bath. They are then moved on to another room where they join their clothes which have in the meantime been disinfected and where they are visited by the quarantine medical officer and a passport clerk. As everything is now done methodically about 100 pilgrims pass through each station every hour and in times of pressure the electric light allows the work to be continued by night. The pilgrim and his luggage are then conveyed by a local railway to the section of the camp destined for their accommodation. Each of these sections is a fenced-in enclosure 200 yards long and 50 yards wide on which there are standing 100 tents, each capable of sheltering six pilgrims, besides the tents of the medical officer and the sanitary police, the store, the restaurant, and the latrines. The medical officer visits each pilgrim twice a day and despatches any pilgrims who are sick to hospital at once. Cholera quarantine lasts for 15 days, but if a case occurs during the quarantine the pilgrims of that section are kept until 15 days have elapsed since the last case of cholera in their section. Egyptian pilgrims who have no long sea voyage to undertake after their emancipation are kept for 18 instead of 15 days. The camp contains 40 sections of which only the 20 intermediate ones are occupied, thus providing accommodation for 12,000 pilgrims at a time. Each section is complete in itself, is strictly isolated from the rest of the camp and is surrounded by a cordon of soldiers, and the camp is furnished with electric light and telephones. The stores are sold at a fixed tariff and the Government provides destitute pilgrims of all nationalities with two meals a day. This description refers to healthy pilgrims, but the moment one is discovered to be diseased he is removed to a hospital according to the nature of his complaint. One hospital is for surgical cases entirely, another for suspicious cases under observation, another for contagious disease, and yet another for cases of ordinary disease. The arrangements this year are certainly better than they have been on former occasions and it is to be hoped that the quarantine authorities will succeed in arresting all cases of cholera at El Tor, thus preventing the disease from being transmitted into Europe or into Egypt. In spite of all that has been written about it in former years the steamers conveying pilgrims are still fearfully overcrowded; one at the beginning of this month conveyed 1514 Russian pilgrims from Jeddah to El Tor and another steamer carried 1560 to the same port. Each of these arrived at El Tor with cholera on board.

The Pilgrimage of 1901.

To go back to last year for a moment it is satisfactory to point out that whereas the general mortality in the camp at El Tor was 0·64 in the case of non-Egyptians it was only 0·06, or 10 times less, in the case of Egyptian pilgrims. Moreover, the number of pauper pilgrims from Egypt was only 61, or less than 1 per cent., of the total number of paupers during the year. On the other hand, out of a total of 18,900 foreign pilgrims no less than 6000, or 31 per cent., had to be fed at the expense of the Egyptian Government. The new rules for controlling the Egyptian pilgrims have been on trial now for three years and have answered so well without any friction that it is a profound pity that Turkey, Russia, and other countries do not adopt similar means to prevent paupers from attending the pilgrimage. The most important of the Egyptian rules are: (1) that no pilgrim is allowed to leave Egypt unless he is provided with a passport, and he cannot obtain this passport until he has deposited 32*s.* to pay for his disembarkation at Suez and his quarantine expenses; (2) that each pilgrim must have a return ticket for the steamer, and that the steamer company must satisfy the Egyptian Government that they can guarantee the return journey of all their passengers; and (3) that all pilgrims landed at Suez must give their addresses to the local sanitary authorities who are thus able to trace them to their homes. Many stringent regulations have been enforced about the steamers carrying Egyptian pilgrims. Besides sanitary regulations the number of pilgrims which each vessel is authorised to carry is painted in large letters on the ship's side; each vessel is inspected by Government officials, and £2000 caution money is deposited by every company to which authority to carry Egyptian pilgrims is given.

Cairo, April 28th.

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Municipal Control of Therapeutic Serums.

DURING the past year there have been—notably at St. Louis—some lamentable accidents from the use of diphtheria antitoxin manufactured by city boards of health which have excited a certain amount of distrust as to the methods employed by such bodies. A movement in favour of Government control has accordingly been initiated. But while no objection has been brought against the adoption of this plan a decidedly adverse sentiment has been manifested against the system in force at the New York City Board of Health. This board for some considerable time has been accustomed to sell its therapeutic serums, thus competing with private manufacturers. The Board of Health of New York City has gained a deservedly high reputation for the good work which it has accomplished and it has been felt and expressed by many physicians that by selling any of its products it not only becomes tainted with commercialism but goes outside its own province and restricts its power of acting in the best interests of the health of the community at large. On April 17th a deputation of pharmacists, physicians, and others opposed to the sale by the New York Board of Health of antitoxin and vaccine virus had an interview with the mayor (Mr. Low) for the purpose of protesting against this course and of endeavouring to prevail upon him to put a stop to the custom. The petitioners were represented by counsel who presented a memorial signed by more than 1000 persons and who stated the condition of affairs to the mayor. The New York City Board of Health contends that only the surplus stock of virus is sold but when a profit of $20,000 (£4000) is made in one year, as in 1901, it would seem that the commercial side of the question is at least one of the objects in view. The

point of the objectors to these methods is that the profit is not derived from the sale of a natural surplus but is calculated upon for the raising of funds for the conduct of the department. Many prominent medical men are of the opinion that while it is not only proper but imperative that there should be a rigid inspection of all therapeutic serums made by private manufacturers or by boards of health it is unjust and contrary to the principles of political science that boards of health should be allowed to trade in such products. The mayor said that after May 1st he would have an inquiry instituted into the whole subject.

Public Baths for New York.

The United States are far behind European countries as regards public bathing arrangements in the cities. New York itself—although some progress has been made in providing its poorer districts with bathing facilities—is still lamentably deficient in this respect. It is said that Liverpool, with a population of 668,000 persons, has spent on public baths more than all American cities combined, while Glasgow almost equals Liverpool in the number of its public baths. Germany in particular and the continent in general are little behind England and Tokio, in Japan, with a population of slightly over 1,000,000, has 800 public baths. There is probably no civilised city in the world with a greater need of a bountiful water-supply for washing and bathing purposes than New York. The supply of water to the private houses is amply sufficient but in the tenement district the dwellings are so overcrowded that bathing and all ablutionary observances must be conducted on the most primitive and restricted scale conceivable and in many cases it is a matter of impossibility for the entire family to get a thoroughly good wash. Dr. Simon Baruch has long identified himself with the movement for a public bath system for New York commensurate with its size and wealth—indeed, he may be called the pioneer of the public bath crusade. Dr. Baruch is an ardent advocate of shower-baths, holding that in every respect they are superior to tub-baths. Viewed from every standpoint public baths may be said to be an advantage, almost a necessity, to a large city. The municipality of New York has recently appropriated $300,000 (£60,000) for the further extension of the bath system, but, as a matter of fact, this sum will be but a drop in the ocean—$3,000,000 (£600,000) would not have been an excessive amount. Nevertheless, this grant may be regarded as an earnest of a more generous one in the future and in this light it should be thankfully received.

Paying Patients in New York City Consumption Hospital.

On Feb. 1st a building on Blackwell's Island in New York Harbour was handed over by the municipal authorities of the city for the treatment of poor persons suffering from pulmonary tuberculosis. Recently the New York Commissioner of Charities published a statement of the results attained so far at the institution. Since Feb. 1st, 273 patients have been admitted affected with phthisis in a more or less advanced stage. Rather more than 50 per cent. of this number were in a very bad condition, many of them being beyond hope of recovery. The remaining 50 per cent. were of two classes—those who presented all the typical symptoms of the disease but were able to live in the ordinary way and those who, while afflicted with phthisis in a bad form, yet retained sufficient vitality to be up for the greater part of the day. Of the 273 patients admitted 55 have been discharged—50 as improved and five as showing no signs of improvement, 28 cases have been transferred elsewhere for operations or as exhibiting no symptoms of tuberculosis, 76 patients who were admitted in an advanced stage have died, and 114 remain in the hospital. Of those remaining 20 are new cases not yet classified, 40 are unable to leave their beds, and 54 are in the early stage. Of these latter 25 have shown marked improvement and have gained in weight an average of 6·75 pounds, 13 have improved more slowly but show an average increase in weight of 1·9 pounds, and 16 have not improved but show an average loss in weight of 1·31 pounds. On the whole the experiment has been a success and it will lead to a further extension of the system of thus treating needy consumptives.

April 28th.

ALLEGED CRUELTY TO FROGS.—At Clerkenwell Police-court on May 3rd an officer of the Royal Society for the Prevention of Cruelty to Animals was granted a summons for alleged cruelty to frogs. The ground of complaint was that more than 100 frogs were kept in a glass fishbowl in a window of a shop where reptiles were sold and that some of them were dead and others were in a dying condition. They were intended to be used for feeding snakes.

Medical News.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGES OF PHYSICIANS AND SURGEONS.—The following gentlemen passed the first examination of the Board at the April quarterly meeting of the examiners in the subjects indicated:—

Chemistry.—Charles James Aveling, University College Hospital; Bernard Richardson Billings, London Hospital; John Errol Moritz Boyd, St. Mary's Hospital; Lawrence Drew Ching, St. Bartholomew's Hospital; John Clarke, Firth College, Sheffield; Bevil Molesworth Collard, London Hospital; David Ernest Stephen Davies, St. Bartholomew's and King's College Hospitals; Francis Carminow Dobie, King's College Hospital; John McDougall Eckstein, St. Bartholomew's Hospital; Howard Robinson Elliott, Firth College, Sheffield; Sydney Frank Henderson Everill, Mason College, Birmingham; John Rowland Foster, University College Hospital; Joseph Tylor Fox, City of London School; Edward Armitage Gough, Yorkshire College, Leeds; William Robert Greening, Guy's Hospital; Walter Bristow Griffin and Rupert Lawrence Haines, St. Bartholomew's Hospital; Henry Edwards Griffiths, University College, Cardiff; Herbert John Hills, Guy's Hospital; Hugh George Hobson, Middlesex Hospital; Thomas Huddleston, Mason College, Birmingham, and Birkbeck Institute; Arthur Rocyn Jones, University College, Cardiff; John Iles Francis Knight and Harold William Latham, London Hospital; Frederick Evelyn Wcolner Meadows and Gordon Nevil Montgomery, Middlesex Hospital; Gerald Hamilton Marris, Guy's Hospital; Frederick William Murray, University College, Liverpool; George Kelsey Breward Neal, Charing Cross Hospital; Malcolmson Knox Nelson, Queen's College, Belfast; Ernest Nuttall, Owens College, Manchester; George Singleton Parkinson, University College, Bristol; Percy Giles Vivian Pedrick, Guy's Hospital; Leonard Russell, King's College Hospital; Gerald Noel Boyd Sebastian, St. George's Hospital; William Fretson Skinner, Firth College, Sheffield; Sidney Slade, Middlesex Hospital; Thomas Lionel Smith, Yorkshire College, Leeds; Herbert McLean Staley, Owens College, Manchester, and Manchester Technical School; George Stone, London Hospital; Arthur Westray Swinburne, Yorkshire College, Leeds; Tom Timothy, University College, Cardiff; Sydney Vosper, St. Bartholomew's Hospital; Harry Wales, Yorkshire College, Leeds; Frederic Winn Walker, Owens College, Manchester; Charles Weller, Birkbeck Institute; and John Dill Williams, Queen's College, Belfast.

Practical Pharmacy.—Arthur Joseph Ambrose, Westminster Hospital; Sydney Charles Gordon Amoore, Charing Cross Hospital; Urban Morris Asphen, Cambridge University and King's College Hospital; Kenelm Digby Bell, St. Bartholomew's Hospital; James Landells Blackie, Otago University and Middlesex Hospital; Gerald Arthur Bradshaw, St. Mary's Hospital; John Butterworth, Owens College, Manchester; Percy Claude Vincent Bent, Sidney Clement Bowie, William Henry Bush, and John Brightman Copland, Guy's Hospital; Mortimer John Cromie, Westminster Hospital; Edgar Severn Ellis, St. Bartholomew's Hospital; Harry Loft Evans, St. Thomas's Hospital; Walter Taylor Finlayson, St. Mary's Hospital; Hugh Bernard German and George Francis Hardy, Guy's Hospital; John Winn Ford Gillies, St. Thomas's Hospital; Frederic Rosenberg Harris, St. Mary's Hospital; Willoughby Henwood Harvey, St. Bartholomew's Hospital; Daniel Morgan Humby, Middlesex Hospital; Frederick Douglas Scimes Jackson and Frederick Charles Rienzi Malins Knight, Guy's Hospital; William Wilfred King and Robert Lecky, University College, Bristol; William Lovell and William Thomas McCowen, St. Mary's Hospital; Horace Palmer Margetts, St. Bartholomew's Hospital; Anthony Mavrogordato, Oxford University and St. Thomas's Hospital; Herbert Edward Morris, Guy's Hospital; Jonas Morris, St. Bartholomew's Hospital; Reginald Moyle, Durham University and Guy's Hospital; John Patten Nettell, London Hospital; Felix Rawsthorne, Owens College, Manchester; Harold Round, Mason College, Birmingham; John Douglas Staley, Owens College, Manchester; Alfred Cuthbert Story, University College, Cardiff, and St. Mary's Hospital; Martin Bramley Taylor, Guy's Hospital; James Turtle, London; and Richard Hugh Williams, University College, Liverpool, and Owens College, Manchester.

Elementary Biology.—Charles Edgar Harvey Adam, St. Bartholomew's Hospital; Charles James Aveling and Richard Barragry, University College Hospital; Winifred Kelsey Beaman, Charing Cross Hospital; William Harvey Bennett, Owens College, Manchester; Bernard Richardson Billings, London Hospital; William Augustine Joseph Mingaye Briggs, St. Thomas's Hospital; Charles Henry Renwick Bryan, Guy's Hospital; Martin Binns Studer Button, London Hospital; Charles Cecil, St. Mary's Hospital; William Winsland Douglas Chilcot, Charing Cross Hospital; John Clarke, Firth College, Sheffield; Horace Golden Cole, St. Thomas's Hospital; Edmund Victor Connellan and Percival Sandy Connellan, University College, Bristol; Cecil Frederick Curtis, Owens College, Manchester; Gustavus William Musgrave Custance, St. Thomas's Hospital; Archibald Davidson, Guy's Hospital; Richard Molesworth Denys and John McDougall Eckstein, St. Bartholomew's Hospital; Howard Robinson Elliott, Firth College, Sheffield; John Jackson Whatley Evans, Westminster Hospital; Leonard Edwards, London Hospital; John Herbert Fitzgerald, Charing Cross Hospital; Alexander Fleming, St. Mary's Hospital; Joseph Tylor Fox, City of London College; Frederick Holcombe Fuller, Municipal School of Science and Technology, Brighton; Eric Worsley Gandy, Cambridge University and Westminster Hospital; Edward Slade Goss, University College, Bristol; Edward Armitage Gough, Yorkshire College, Leeds; Cyril Douglas Graham, London Hospital; Henry Granger, St. Thomas's Hospital; Vivian Bartley Green-Armytage, University College, Bristol; Morrice Green, University College, Liverpool; Harry Martin Grey, Walter Bristow Griffin, John Herbert Gurley, and Rupert Lawrence Haines, St. Bartholomew's Hospital; Thomas

Huddleston, Mason College, Birmingham; Godfrey Martin Huggins, St. Thomas's Hospital; John Gladstone Ivers, Owens College, Manchester; Theodore Arthur Izard, St. Bartholomew's Hospital; Courtnay Cooper Keates, St. Mary's Hospital; William Robert Kilgour, St. Bartholomew's Hospital; William Herbert King, University College Hospital; James Johnson Louwrens, St. Mary's Hospital; Harold William Latham and Owen Reginald McEwen, London Hospital; Richard Hugh McGillieuddy, University College Hospital; Frederick Evelyn Woolner Meadows and Gordon Nevill Montgomery, Middlesex Hospital; Joseph Leopold Meynell, London Hospital; Richard Ash Moxon, St. Mary's Hospital; Frederick William Murray, University College, Liverpool; Henry Williams Nicholls, Middlesex Hospital; Roger Brighouse Nicholson, Owens College, Manchester; Philip Spencer O'Bryen-Taylor, St. Mary's Hospital; Charles Melton Ockwell, Guy's Hospital; Francis Budge O'Dowd, Mason College, Birmingham; Francis William O'Connor, Richard Dominic O'Connor, Max Onslow-Ford, and Frank George Page, St. Bartholomew's Hospital; Hubert Arnold Pallant, Guy's Hospital; George Singleton Parkinson, University College, Bristol; Frederic Eustace Leigh Phillips, London Hospital; Lionel Lewis Phillips, St. Bartholomew's Hospital; Cuthbert Grant Plumley, University College and Merchant Venturers' College, Bristol; Edward Campbell Pope, St. Mary's Hospital; George Andrew Russell, Mason College, Birmingham; Edgar Arthur Shirvell, London Hospital; Leslie Ernest Maule Smith, Charing Cross Hospital; Walter Heaton Smith, Owens College, Manchester; Francis Edgar Sprawson, Birkbeck Institution; George Stone, London Hospital; Arthur Arbuthnot Straton, St. Mary's Hospital; William Francis Sutcliffe, St. Thomas's Hospital; Edmund James Fairfield Thomas, University College, Bristol; St. John Alexander Molesworth Tolhurst, Guy's Hospital; Herbert Edmund Blaker Turner, Guy's Hospital; Walter George Howard Masterman Verdon, University College, Cambridge; Harold FitzVellacott and Louis Michael Waldron, London Hospital; Harry Wales, Yorkshire College, Leeds; and Harrie Bruce Wickham, University College, Liverpool.

UNIVERSITY OF CAMBRIDGE.—At the third examination for medical and surgical degrees, Easter term, the following candidates were successful:—

Part I. Surgery and Midwifery.—H. W. Atkinson, M.A., Caius; E. A. A. Beck, M.A., Clare; W. V. Braddon, B.A., Trinity Hall; W. H. Brailey, B.A., Queen's; W. F. Buckle, B.A., Caius; H. N. Burroughs, B.A., Trinity; R. Butterworth, B.A., Christ's; J. G. Cooper, Trinity; H. A. Cutler, B.A., Clare; H. H. Dale, B.A., Trinity; J. F. H. Daily, B.A., St. John's; R. S. Drew, B.A., Pembroke; G. G. Elliott, B.A., Catherine; E. A. Ellis, B.A., Downing; W. H. Fisher, B.A., Emmanuel; J. E. Frere, B.A., Pembroke; J. D. H. Freshwater, M.A., and H. U. Gould, B.A., Trinity; C. H. Gregory, B.A., Emmanuel; T. Guthrie, B.A., King's; C. F. Hardie, B.A., Queen's; W. L. Harnett, B.A., St. John's; R. T. Harris, B.A., Christ's; D. Holroyde, B.A., Trinity; W. W. Holtzmann, B.A., Christ's; C. R. Howard, B.A., Pembroke; B. Hudson, B.A., Clare; K. H. A. Kellie, B.A., Caius; F. S. Kidd, B.A., Trinity; P. W. Leathart, B.A., Clare; H. D. Ledward, B.A., Trinity; T. W. Mercer, B.A., Clare; G. R. Rickett, B.A., King's; T. St. Clair Smith, B.A., Trinity Hall; J. E. Spicer, B.A., Trinity; H. Statham, B.A., Christ's; J. M. Stenhouse, B.A., Sidney Sussex; W. M. Strong, M.A., Trinity; W. B. Swete-Evans, B.A., Clare; H. T. Thompson, B.A., and J. M. Twentyman, B.A., Christ's; H. Wales, B.A., Sidney Sussex; F. Whitaker, B.A., Trinity; J. H. F. Wilgress, B.A., H. Selwyn; C. E. Worthington, B.A., Caius; and G. A. Wright, B.A., Christ's.

Part II. Medicine.—J. F. Alexander, B.A., Trinity; J. A. Andrews, B.A., St. John's; G. F. Barham, B.A., Caius; B. L. T. Barnett, M.A., St. John's; J. Barnicot, B.A., Pembroke; J. M. Bennion, B.A., St. John's; L. Bousfield, B.A., Pembroke; A. S. Bradley, B.A., Caius; H. C. Brown, B.A., Emmanuel; H. S. D. Browne, B.A., and C. V. Bulstrode, B.A., Trinity; H. O. Butler, B.A., Emmanuel; F. R. Carroll, B.A., and H. H. Clarke, B.A., Trinity; G. L. Crimp, B.A., Caius; A. F. Elliott, B.A., Emmanuel; R. L. V. Foster, M.A., and G. D. Franklin, B.A., King's; E. H. Harrisson, B.A., Clare; G. P. D. Hawker, B.A., Caius; J. P. Hedley, B.A., and H. T. Hodgkin, B.A., King's; W. W. Jeudwine, B.A., H. Selwyn; E. H. Kitchin, B.A., Downing; A. P. Laycock, B.A., St. John's; G. E. Loveday, B.A., Caius; J. McBryde, B.A., King's; J. C. Matthews, B.A., Downing; F. D. Nicholson, B.A., King's; C. de C. Peiller, M.A., Clare; B. B. Sapwell, B.A., Corpus Christi; C. H. Sedgwick, B.A., Sidney Sussex; F. E. Shipway, M.A., Christ's; H. J. Shone, B.A., Emmanuel; J. E. B. Snell, B.A., B. Spearman, B.A., R. Spearman, B.A., and H. H. Stiff, B.A., Caius; G. E. St. C. Stockwell, B.A., King's; B. L. Thurlow, B.A., Caius; G. H. L. Whale, B.A., Jesus; and G. R. Wilson, B.A., and W. W. Wingate-Saul, M.A., Trinity.

Pharmacology and General Pathology only.—C. Akerman, B.A., Caius; W. Hastings, B.A., Christ's; G. G. Hirst, B.A., Caius; C. W. P. Moffatt, B.A., Clare; R. N. Poignand, B.A., Caius; R. E. Whiting, B.A., King's; and R. G. Wills, B.A., St. John's.

The following candidates have satisfied the examiners in both parts of the examination in Sanitary Science and are entitled to the Diploma in Public Health:—

George Hugh Spencer Blackburne, John Augustus Herman Brincker M.B., B.C. (St. John's), Isaac Alexander Davidson, Mohomed Abdul Ghany, Henry Albert John Gidney, Robert Walker Gray, George Haddow, John Russell Higson, Joseph Hunter, Alice Neville Vowe, Percy Wheeler Kent, Stanley Thorpe Lewis, M.B., B.C. (St. John's), William Joseph Lindsay, M.B., B.C. (Sidney Sussex), John MacDonald McCarthy, M.B., B.C. (Non-Collegiate), Thomas Joseph McDonogh, Arthur William James MacFadden, Richard Galway Murray, Burton Alexander Nicol, Eugene John O'Meara, Devi Datt Pandya, Richard Frank Rand, James Hood Rankin, Frederick Sanger (St. John's), Witney Charles Palmer Smith (Downing), George Sowden, James Russell Watson, and Willoughby Mason Willoughby, M.B., B.C. (Gonville and Caius).

ROYAL COLLEGE OF SURGEONS IN IRELAND.—At a meeting of the President, Vice-President, and Council, held on May 6th, the following examiners were elected:—In anatomy: Ambrose Birmingham and Alexander Fraser. In physiology and histology: E. L'E. Ledwich and C. Coppinger. In ophthalmology: Arthur H. Benson and P. W. Maxwell. In pathology and bacteriology: Arthur Hamilton White. In pathology: Robert Allen. In midwifery and gynæcology: Frederick W. Kidd. In biology: John J. Burgess. In sanitary law and vital statistics: H. Benson Goulding. In engineering and architecture: J. Charles Wilmot. In dental surgery and pathology: Daniel Corbett, jun., and W. G. Story. In mechanical dentistry: George M. P. Murray and William Booth Pearsall. In chemistry and physics: Edward Lapper and R. J. Montgomery. In languages: L. J. Woodroffe. In mathematics, physics, dictation, and English essay: J. W. Tristram.

ROYAL INSTITUTION.—The annual meeting of the members of the Royal Institution was held on May 1st, Sir James Crichton-Browne being in the chair. The annual report of the Committee of Visitors for the year 1901, testifying to the continued prosperity and efficient management of the institution, was read and adopted, and the report of the Davy-Faraday Research Laboratory of the Royal Institution which accompanied it was also read. 44 new members were elected in 1901. 63 lectures and 17 evening discourses were delivered in 1901. The books and pamphlets presented in 1901 amounted to about 253 volumes, making, with 722 volumes (including periodicals bound) purchased by the managers, a total of 975 volumes added to the library in the year. Thanks were voted to the President, the treasurer, and the honorary secretary, to the committees of managers and visitors, and to the professors for their valuable services to the institution during the past year. The following gentlemen were unanimously elected as officers for the ensuing year:—President, the Duke of Northumberland; treasurer, Sir James Crichton-Browne; secretary, Sir William Crookes; managers—the Right Hon. Lord Alverstone, Sir James Blyth, Bart., Sir Frederick Bramwell, Bart., Dr. Thomas Buzzard, Dr. Donald Hood, Sir Francis Laking, Mr. George Matthey, Dr. Ludwig Mond, Dr. Hugo Muller, Mr. Edward Pollock, Sir Owen Roberts, Sir Felix Semon, the Right Hon. Sir James Stirling, Mr. John I. Thornycroft, and Mr. James Wimshurst; visitors—Dr. Henry E. Armstrong, Dr. Charles Edward Beevor, Mr. John B. Broun-Morison, Mr. Francis Elgar, Mr. Francis Gaskell, Dr. J. Dundas Grant, Lord Greenock, Mr. Maures Horner, Sir Henry Irving, Mr. Wilson Noble, Mr. W. R. Pidgeon, Mr. Arthur Rigg, Mr. W. S. Squire, Mr. Harrold Swithinbank, and Mr. Charles Wightman.—The Constitution of Crystals was the subject of the Friday evening discourse delivered at the Royal Institution on May 2nd by Mr. A. E. Tutton, who has been making researches which lead to the result that in any series of crystalline salts the properties of the crystals are functions of the atomic weights of the metals composing them. Models of the crystals of the sulphates of potassium, rubidium, and cæsium were shown, and it was pointed out that the mutual inclinations of the faces of the three salts changed progressively, following the numerical order of the atomic weights. It was also shown that in the changing values of the angles at which their optic axes were inclined crystals followed the order of the atomic weights of their metals. Numerous polarisation experiments were performed in illustration of the subject.

Parliamentary Intelligence.

HOUSE OF COMMONS.

THURSDAY, MAY 1ST.

West African Medical Staff.

Mr. CAINE asked the Secretary of State for the Colonies if Indian medical men bearing British degrees in medicine were eligible for appointments on the West African medical staff.—Mr. CHAMBERLAIN replied: Indian medical men are not eligible for employment on the West African medical staff.—Mr. CAINE: Why exclude them?—Mr. CHAMBERLAIN: That is a matter for argument. There are circumstances which render the employment of medical men of Indian birth in West Africa undesirable.—Mr. CAINE: I will raise the question on the vote for the salary of the Secretary of State.—Mr. CHAMBERLAIN: By all means.

London Water Charges.

Mr. KIMBER asked the President of the Local Government Board whether he would propose the insertion in the Water Bill of clauses to readjust the existing water-rates and to charge them on uniform principles through London, and so that the charge for water should be such as to prevent any deficiency in the water fund which might be a burden upon the rates; also provisions for securing uniformity of valuation for assessment, similar to those contained in the Valuation Metropolis Act, 1899, applicable to the district outside the county of London affected by the Bill; and whether he would propose provisions for the supply of water by meter compulsorily if required by consumers.—Mr. GRANT LAWSON, replying for Mr. LOCG, said: Such matters as the readjustment of water-rates or the supply by meter must, I think, be left to the consideration of the Water Board. A proposal will, however, be made before the joint committee to insert a provision in the Bill to the effect that the Water Board shall not, until otherwise authorised by Parliament, reduce the rates charged for the supply of water below those in force during the present quarter. An amendment of the law so as to secure uniformity of valuation for assessment will be one of the main objects of the proposed Government Valuation Bill. It would be outside the scope of the Water Bill.

MONDAY, MAY 5TH.

Water in Butter.

Sir EDWARD STRACHEY asked the President of the Board of Agriculture whether he was aware that by a recent decision of the High Court butter might be sold to the public which had been adulterated with a large percentage of moisture without infringement of the Margarine Act; and whether he would introduce a Bill to put a stop to the sale of an article which was prejudicial in the interests of the dairy industry of Great Britain and of the retailers and consumers throughout the country.—Mr. HANBURY replied: I am aware of the prejudice done to the makers of genuine butter both in this country and the colonies by the sale as milk-blended butter of an article artificially loaded with 25 per cent. of water. The recent introduction of an authorised standard of butter will, it is to be hoped, if standards in such cases are to be of any real value, have the effect of preventing such an article being so sold, but should that not prove to be the case, further steps ought, I think, to be taken without delay to remedy the injustice done to both British and colonial farmers.

The Army Medical Service.

Captain NORTON asked the Secretary of State for War if he would consider the advisability of granting to officers who had retired from the Army Medical Department and other branches of the service and were not liable to recall, but accepted service in the late national emergency, similar conditions with reference to pension and rank as were granted to reserve officers who had been re-employed.—Lord STANLEY, for Mr. BRODRICK, replied: Medical officers not liable to recall who volunteered to take the places normally occupied by medical officers of the regular army obtain similar conditions to reserve officers.

Physical Training for School Children.

Mr. PRIESTLEY asked the First Lord of the Treasury if His Majesty's Government would consider the appointment of a Royal Commission for England and Wales, similar to the one recently appointed for Scotland, to inquire into the question of the physical training of children in all public elementary schools.—Mr. BALFOUR replied: I have not yet had any opportunity of consulting the authorities of the Education Department, but as at present advised it seems to me as if it would be wise in the first place to await the results of the commission now inquiring into this very question in Scotland—an inquiry which, if not absolutely conclusive as regards England, must certainly throw an amount of light on the English question; and in the second place, to await the result of the discussion on the Education Bill now before the House.

TUESDAY, MAY 6TH.

Enteric Fever among the Troops in South Africa.

Sir WALTER FOSTER asked the Secretary of State for War whether he could state the number of cases of enteric fever and the number of deaths from that disease which had occurred among the troops in South Africa in December, 1901, and in January and February, 1902; whether he was able to give any particulars as to the incidence of the disease upon camps and moving columns respectively; and whether any special precautions were being taken to prevent the occurrence of the disease in the columns and in the camps.—Mr. BRODRICK replied: The figures for the three months are: December admissions 1507, deaths 224; January admissions 2750, deaths 396; and February admissions 2122, deaths 333. The principal medical officer reports that the enteric cases mostly come from the columns but it is not possible to obtain figures from the statistics to show this clearly. In the camps and stationary garrisons steps have been taken to have the water boiled and special officers selected to deal with the sanitary work of districts and the outbreak of disease. For mobile columns a scheme of providing safe water to fill the soldiers' water-bottles at all times has been prepared, involving an increase in the water-carts, and measures are being taken to carry this out. Officers have been specially instructed as regards the necessity of preventing the men from drinking water from unsafe sources but it is not too much to say that no instructions will prevent thirsty men committing such indiscretion and many soldiers when in hospital have admitted that they preferred the risk to the otherwise unavoidable delay.

Accidents with Petroleum Lamps.

Sir MANCHERJEE BHOWNAGGREE asked the Home Secretary if he had seen the report of the coroner's inquest held on the bodies of seven young persons and children who perished in the fire at Hackney-road on April 19th last; if he had noticed the evidence given at the inquest by the inspector appointed under the Petroleum Act that the catastrophe, which was caused by the tilting of a lamp, occurred owing to the flash-point of the oil which escaped being as low as 88 degrees; if his attention had been drawn to the inspector's statement that such oil was largely sold in the East End, and that it was the cause of 26 fatal accidents last year; and whether he contemplated taking any steps to prevent the sale of petroleum the flash-point of which was dangerously low.—Mr. RITCHIE replied: Yes, sir, and I have caused the report of the case to be very carefully considered. From the evidence it would appear that the accident was caused by the fall of a lamp and the escape of the oil, both the lamp and oil being in a highly-heated condition. I am advised that in these circumstances a conflagration is likely to occur with any form of petroleum and in ordinary lamps. I do not find that the inspector stated that the oil used in this instance was the cause of the 26 fatal accidents last year. As a matter of fact in 12 of those cases the flash point of the oil was not known and in two cases it was over 100 degrees Fahrenheit. As regards the present case it is impossible to ascertain the exact cause of the heating of the lamp, but if this was in any way due to the oil it can only have been on account of its sluggish or slow-burning nature, and these qualities, I am advised, go rather with a high-flash than with a low-flash oil.

WEDNESDAY, MAY 7TH.

Accidents with Petroleum Lamps.

Mr. LEAMY asked the Home Secretary whether, in view of the increasing number of fatal accidents arising from the use for domestic purposes of low-flash oil, the Government intended to bring in a Bill to prohibit or regulate its sale; and if, until there was legislation on the subject, the Home Department would take steps to warn dealers in oil and the public generally of the danger in the use of low-flash oil.—Mr. RITCHIE replied: I would refer the hon. Member to the answer which I gave yesterday to a somewhat similar question. The considerations set out in that answer, as well as the statistics generally, throw doubt in my opinion on the suggestion in the question that there is an "increasing number of fatal accidents arising from the use of low-flash oil." I would merely add that a paper containing a series of suggestions for the care and use of petroleum lamps, a most important element in this matter, was prepared and issued in large numbers by the Home Office a few months ago.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, for publication in the next number.

BALL, C. R. H., M.R.C.S., L.R.C.P. Lond., has been appointed Assistant House Physician to the Metropolitan Hospital.

BERKELEY, COMYNS, M.B., B.C. Cantab., M.R.C.P. Lond., has been appointed Lecturer on Practical Midwifery at the Middlesex Hospital.

BOND, F. T., M.D. Lond., has been re-appointed Medical Officer of Health to the Chipping Sodbury Rural District Council.

BORTHWICK, THOMAS, M.D. Edin., has been appointed Honorary Bacteriologist to the Adelaide Hospital, South Australia.

BROWN, E. HAROLD, M.D. Brux., Major I.M.S., has been appointed Clinical Assistant to the Chelsea Hospital for Women.

BURTON, H., L.R.C.P. Irel., M.R.C.S., has been re-appointed Medical Officer of Health for Marple Urban District Council.

BUTLER-HOGAN, J. F., B.A. R.U.I., M.D. Brux., D.P.H. Camb., &c., has been appointed Medical Officer of Health to the Tottenham Urban District Council.

COOK, PERCIVAL ROBERT, M.B. Univ. N.Z., has been appointed Public Vaccinator for the District of Waipara, New Zealand.

CRAN, WILLIAM JAMES, M.B. Univ. N.Z., has been appointed Public Vaccinator for the District of Brunner, New Zealand.

DANKS, W. S., M.B. Lond., has been appointed Civil Medical Officer to the South African Field Force.

DENNING, C. E., L.R.C.S., L.K.Q.C.P. Irel., has been appointed Certifying Surgeon under the Factory Act for the Epping District of Essex.

ELLIOT, J. P., L.R.C.P. & S. Edin., has been re-appointed Medical Officer of Health for Bellingham Rural District Council.

FROST, CONSTANCE HELEN, M.B. N.Z., has been appointed Assistant Bacteriologist to the Adelaide Hospital, South Australia.

GOUGH, WILLIAM, M.B., B.S., B.Sc., L.R.C.P. Lond., M.R.C.S., has been appointed House Surgeon to the Hospital for Children and Women, Leeds.

GRIFFIN, INNES, M.R.C.S., has been re-appointed Medical Officer of Health of the Borough of Banbury.

HICKS, CHARLES, L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Certifying Surgeon under the Factory Act for the Horsmonden District of Kent.

IVENS, FRANCES, M.B. Lond., late Clinical and Assistant Pathologist, has been appointed House Surgeon to the Royal Free Hospital, Gray's-inn-road.

JONAS, HERBERT CHARLTON, M.B., B.S. Lond., M.R.C.S., L.R.C.P., has been appointed an Honorary Medical Officer to the Barnstaple and North Devon Infirmary.

LENEY, LYDIA ANN, M.D. Brux., has been appointed Oculist in the Medical Department of the School Board for London.

LITTLE, ANDREW, M.B., M.S. Aberd., has been appointed Honorary Surgeon to the Eye and Ear Hospital, Bradford.

LLOYD, W. P., M.B., B.C. Cantab., has been appointed Assistant Surgeon to the Windsor Royal Infirmary.

LOW, C. W., M.B. Durh., D.P.H., has been re-appointed Medical Officer of Health for Stowmarket Urban District Council.

LYNCH, ARTHUR FRANCIS, M.B., B.S. Adel., has been appointed Honorary Pathologist to the Adelaide Hospital, South Australia.

MACKENZIE, MURDOCH, F.R.C.S. Edin., has been appointed Port Health Officer for the Port of Westport, New Zealand.

MCDOUGALL, OLIVE, M.B. Lond., has been appointed House Physician to the Royal Free Hospital, Gray's-inn-road.

MOSSOP, A. G., L.R.C.P. Irel., M.R.C.S., has been re-appointed Medical Officer of Health to the Port Sanitary Authority of Newhaven.

NIXON, J. A., M.B., B.C. Cantab., has been appointed Surgeon to the s.s. *Johannesburg*.

NOKE, F. H., M.B. Lond., has been appointed Assistant House Surgeon to the Metropolitan Hospital.

ORMEROD, A. L., M.D. Oxon., D.P.H., has been appointed Medical Officer of Health of the City of Oxford.

PURNELL, RICHARD, M.D. St. And., has been appointed Medical Officer of Health of the Borough of Wells.

REYNOLDS, FRANCIS MORTIMER, M.B., C.M. Edin., has been re-appointed Medical Officer of Health for the Otterv St. Mary (Devon) Urban District Council for three years.

RITCHIE, ALEXANDER B., M.B., M.S. Edin., has been appointed Medical Officer to the Manchester School Board.

ROBERTS, E. J., M.B. Univ. N.Z., has been appointed Port Health Officer for the Port of Nelson, New Zealand.

SANDSTER, JOHN IAIN, M.R.C.S., has been appointed a Member of the Board of Advice for the School District of the Burra, South Australia.

SODHI, BABA M. SINGH, M.B., Ch.B. Edin., has been appointed Senior Assistant Medical Officer to the Portsmouth Asylum, vice Mr. John J. Glasgow.

STEPHENS, STANLEY, L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer to the Newton Abbot (Devon) Workhouse, vice James Culross, resigned.

STOTT, W. H., L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Certifying Surgeon under the Factory Act for the Caton District of Lancashire.

WHITAKER, E. T., M.B., B.Sc. Edin., has been re-appointed Medical Officer of Health for Wem Urban District Council.

WILLIAMS, E. C., M.R.C.S., L.R.C.P. Lond., has been appointed Surgeon to the P. and O. s.s. *Peninsular*.

WOOD, M. D., M.D. Durh., has been appointed Second Assistant Medical Officer to the Hayward's Heath Asylum.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Resident Surgical Officer. Salary £100 per annum, with apartments, board, and attendance.

BIRMINGHAM GENERAL DISPENSARY.—Resident Locums. Terms 4 guineas per week, with apartments.

BIRMINGHAM GENERAL HOSPITAL.—Aural Surgeon and Laryngologist.

BRISTOL CITY LUNATIC ASYLUM.—Medical Assistant, unmarried. Salary £140 per annum, increasing to £160, with apartments, board, and washing.

CANCER HOSPITAL, Fulham-road, S.W.—Junior House Surgeon. Salary at rate of £70 per annum, with board and residence.

CENTRAL LONDON SICK ASYLUMS at Cleveland-street or Hendon.—Assistant Medical Officer. Salary £120 per annum, with board and residence at Hendon Asylum.

CHELSEA HOSPITAL FOR WOMEN, Fulham-road, S.W.—Registrar. Honorarium of 20 guineas per annum.

CITY ASYLUM, BIRMINGHAM.—Resident Clinical Assistant, with board, residence, and washing. Honorarium at rate of £50 a year.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria-park, E.—Two House Physicians for six months, with board, washing, and residence provided, and salary at rate of £30 per annum.

COLOMBO, CEYLON, MUNICIPALITY OF.—Medical Officer of Health. Salary equivalent to £400, rising to £500, and conveyance allowance.

CORNWALL ROYAL INFIRMARY.—House Surgeon (unmarried). Salary £100, increasing, with board and apartments.

DURHAM COUNTY ASYLUM.—Junior Assistant Medical Officer. Salary £150, rising to £180 a year, with apartments, board, laundry, and attendance.

ECCLES AND PATRICROFT HOSPITAL, Lancashire.—House Surgeon. Salary £70, with board, residence, and washing.

GLAMORGAN COUNTY ASYLUM, Bridgend.—Locum Tenens. Board and 4 guineas a week.

GRAVESEND HOSPITAL.—House Surgeon. Salary £90 per annum, with board and residence.

HORTON INFIRMARY, Banbury.—House Surgeon and Dispenser. Salary £80 per annum, with board and lodging.

JERUSALEM BRITISH OPHTHALMIC HOSPITAL.—Clinical Assistant. Salary £100 and allowances.

KENT AND CANTERBURY HOSPITAL.—Assistant House Surgeon, unmarried. Salary £60 a year, with board and lodging.

KENT COUNTY ASYLUM, Barming Heath, Maidstone.—Fourth Assistant Medical Officer and Pathologist, unmarried. Salary £175 per annum, rising to £200, with quarters, attendance, &c.

KINCARDINE, Ross-shire, PARISH COUNCIL.—Resident Medical Officer. Salary £72 10s. as Medical Officer and £5 per annum as Vaccinator, with lunacy fees in addition.

KINGS NORTON AND NORTHFIELD URBAN DISTRICT COUNCIL AND INFECTIOUS DISEASES HOSPITAL.—Medical Officer of Health and Medical Superintendent. Combined salary £500 per annum.

LANCASHIRE COUNTY ASYLUM, Whittingham.—Junior Assistant Medical Officer, unmarried. Initial salary £150, with apartments, board, washing, and attendance.

LIVERPOOL STANLEY HOSPITAL.—Senior House Surgeon. Salary £100 per annum, with board, residence, and washing; also Third House Surgeon. Salary £70 per annum, with board, residence, and washing.

METROPOLITAN ASYLUMS BOARD ASYLUM, Caterham, Surrey.—Assistant Medical Officer, unmarried. Salary £150 per annum, rising to £170, with rations, lodging, attendance, and washing.

METROPOLITAN ASYLUMS BOARD FEVER AND SMALL-POX HOSPITALS.—Assistant Medical Officers, unmarried. Salary £180 per annum, rising to £240, with board, lodging, attendance and washing.

MILLER HOSPITAL AND ROYAL KENT DISPENSARY, Greenwich-road.—Dentist.

MONKWEARMOUTH AND SOUTHWICK HOSPITAL, Sunderland.—House Surgeon. Salary £50 per annum, with board, lodging, and washing.

NEW HOSPITAL FOR WOMEN, 144, Euston-road, N.W.—Medical Woman to take charge of the Roentgen Ray Department. Also House Physician, House Surgeon, and Clinical Assistant (all female).

NORTHAMPTON ST. ANDREW'S HOSPITAL FOR MENTAL DISEASES.—Assistant Medical Officer for six or seven months. Salary four guineas a week, with board, lodging, and washing.

NORTH-WEST LONDON HOSPITAL, Kentish Town-road.—Second Honorary Anæsthetist. Also Resident Medical Officer. Also Assistant Resident Medical Officer, both for six months. Salary at rate of £50 per annum each, with board, residence, and washing.

NOTTINGHAM GENERAL DISPENSARY.—Assistant Resident Surgeon, unmarried. Salary £100 per annum, with apartments, attendance, light, and fuel.

OXFORD RADCLIFFE INFIRMARY.—House Surgeon, also Junior House Surgeon, both for six months. Salaries £40 and £30 respectively, with board and lodging.

POPLAR AND STEPNEY SICK ASYLUM DISTRICT, Bromley, E.—Second Assistant Medical Officer. Salary £100 with rations, apartments, and washing.

ROYAL ALBERT HOSPITAL, Devonport.—Resident Medical Officer. Salary £110 per annum, with board and lodgings.

ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL, Southampton.—Senior and also Junior House Surgeon. Salaries £120 and £80 per annum respectively, with rooms, board, and washing. Also Dentist.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, King William-street, West Strand, W.C.—Clinical Assistants for six months.

TOTTENHAM HOSPITAL.—House Surgeon. Salary £50 per annum, with board, residence, and laundry.

WALLASEY DISPENSARY AND VICTORIA CENTRAL HOSPITAL, Liscard.—House Surgeon, unmarried. Salary £100, with board, apartments, and service.

WEST RIDING ASYLUM, Wakefield.—Pathologist and Assistant Medical Officer. Salary £140, rising to £160, with apartments, board, washing, and attendance.

WESTERN GENERAL DISPENSARY, Marylebone-road, N.W.—Second House Surgeon, unmarried. Salary £30 a year, with board, residence, and laundry.

WILTS COUNTY ASYLUM, Devizes.—Assistant Medical Officer, unmarried. Salary £150 a year, rising to £180, with board, residence, attendance, and washing.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Physician, also House Surgeon. Salary (in each case) £100 per annum, with board, lodging, and washing.

THE Secretary of State for the Home Department, Whitehall, S.W., gives notice that there is a vacancy for a Medical Referee under the Workmen's Compensation Act, 1897, for the Whitchurch, Crewe, and Nantwich County Courts in Circuit No. 9.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies as Certifying Surgeon, under the Factory Acts, at Cruden in the county of Aberdeen, at Haltwhistle in the county of Northumberland, at Youlgreave in the county of Derby, and at Esher in the county of Surrey.

Births, Marriages, and Deaths.

BIRTHS.

GODDARD.—On May 4th, at Norfolk-crescent, Hyde-park, W., the wife of W. H. Goddard, M.D. Cantab., of a daughter.

HARVEY.—On April 27th, at Hartfield-road, Wimbledon, the wife of Joseph Harvey, M.B. Univ. Irel., of a daughter.

PEARSON.—On April 29th, at Alva-street, Edinburgh, the wife of C. Mowbray Pearson, M.B., Ch.B. Edin., of a daughter.

TURNER.—On May 2nd, at Westbury, Purley, Surrey, the wife of S. Duke Turner, M.B., B.S. Durh., of a daughter.

MARRIAGES.

PLAYFAIR—WINTON.—On Wednesday, April 30th, at the parish church, Speldhurst, Kent, by the Rev. Charles Stuart Macdonald Playfair, M.A., parish church, Folkestone, cousin of the bridegroom, assisted by the Rev. D. D. Mackinnon, M.A., rector of Speldhurst, David Thompson Playfair, M.D., Bromley, Kent, eldest son of the late Rev. David Playfair, B.A., Abercorn, N.B., to Annie Seaton (Birdie), only daughter of Edwin William Winton, Etherton-hill, Speldhurst, Kent.

WAGSTAFF—BEASLEY.—On April 29th, at St. Mary's Church, Dallington, Northampton, Frank Alexander Wagstaff, M.R.C.S., L.R.C.P. Lond., to Margaret Elizabeth, youngest daughter of the Rev. T. C. Beasley, vicar of Dallington.

DEATHS.

BERRY.—On May 2nd, at Pembridge-villas, W., Henry Thomas Berry, M.R.C.S., in his 83rd year.

BOLTON.—On April 28th, in South Africa, John Usherwood Bolton, M.R.C.S., L.R.C.P. Edin.

STEPHENS.—On April 30th, at Lynton, N. Devon, Daniel Robert Porritt Stephens, M.B. Camb., F.R.C.S. Eng.

TURNER.—On the 6th inst., at Hove, Theophilus Brycett Turner, M.R.C.S., second son of the late Rev. Thomas Turner, rector of Port Royal, Jamaica. Aged 56 years.

VENN.—On May 6th, 1902, at 13, Vicarage Gate, Kensington, W., Emma, the beloved wife of Albert J. Venn, M.D., of 63, Grosvenor-street, Grosvenor-square, W., and late of Kemnal Wood, Chislehurst. Funeral service at St. Mary Abbots, Kensington, at 2 o'clock on Saturday, May 10th. Interment at Kensal Green Cemetery at 3.30. Friends will please accept this, the only, intimation.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE OBLIGATION (?) OF A MEDICAL MAN TO ATTEND.

ONCE again has the question whether a medical man is bound to attend a summons to a patient been brought up in a coroner's court. The case in question came before the coroner for the city of Canterbury at an inquest held on April 25th. The inquest was to inquire into the death of a woman named Twyman who had died in the union infirmary. From evidence given by the husband at the inquest it appeared that the woman was taken ill on a Sunday with a fit. Witness's sister-in-law went for a medical man who was unable to come. On the Monday Mr. Brian Rigden arrived and recommended that the patient should be removed to the infirmary. This was done. Mr. Frank Wacher, the medical officer of the infirmary, deposed to seeing the patient twice on the night of her admission and upon several occasions next day. On Tuesday morning a child was born, but the woman died at 4.30 A.M. on the Wednesday. Death was due to puerperal convulsions. Mrs. Vaughan, who is Mrs. Twyman's sister, deposed to being sent by Mr. Twyman for a medical man. The first to whom she applied was Mr. Z. Prentice who recommended her to get Mr. Rigden. Mr. Prentice stated in court that he refused to go because he knew that he might be kept a long time and he was bound to appear early on the following morning in the Court of King's Bench. He recommended Mrs. Vaughan to get someone else but not particularly Mr. Rigden. Mrs. Vaughan, in the remainder of her evidence, stated that she had applied to Mr. Rigden who replied that he had company and could not come. He also advised her to go for someone else, but she replied that she should not. Mr. Rigden in his evidence described Mrs. Vaughan's visit. According to him she said that Mrs. Twyman had been ill for some time and was expecting to be confined in about a fortnight. He recommended her to get someone else because he had a visitor who had just arrived from abroad. Next morning Mr. Twyman arrived and asked him to attend. He went in the afternoon and arranged for the woman to be removed to the infirmary, as he found Mrs. Twyman suffering from the effects of a fit. Mr. Twyman had not been for anyone else in the night and he thanked Mr. Rigden for getting his wife into the infirmary. At this point a juryman named Belsey said to witness: "Had it been a person in good circumstances you would have gone. It is a question of pounds, shillings, and pence." Mr. Belsey, in answer to the coroner, said that the public paid for doctors. He considered that Mr. Rigden's evidence was not satisfactory. The coroner pointed out that no medical man was bound to go to a case unless he had been previously engaged to do so. Medical men were not public property. The jury returned a verdict in accordance with the medical evidence. We hope that the coroner's remarks will go home, but there is a class of persons the members of which often figure on juries who are firmly convinced that medical men are bound to attend any and every summons. For the information of Mr. Belsey and those like him we say that no medical man is bound to go to any case, unless, as the coroner pointed out, he has previously engaged himself to do so. Mr. Belsey's energies are wasted at Canterbury; he should go to Clyne in Sutherlandshire, where they look upon a medical man as a sort of parish servant.

WANTED—A HOME.

To the Editors of THE LANCET.

SIRS,—I have a slight case of melancholia in a middle-aged married woman. On awaking in the morning she shouts continuously and digs her nails into and pinches her husband. She says that she cannot work, but about midday when the work is done she is able to eat her dinner and perhaps go out for a walk or play cards with her husband. He cannot put up with her any longer and would be willing to pay from 10*s.* to 15*s.* a week to get her away for a bit in the hope that a change and discipline would do her good. I should be obliged if someone could assist me in this matter.—I am, Sirs, yours faithfully,

FRED. W. BARTON, M.R.C.S. Eng., L.R.C.P. Lond.

54, Stockwell Green, S.W.

FALSE COLOURS.

WE have received a copy of the *Malthusian* for May. On p. 40 appears a list of members of the Medical Branch of the Malthusian League and among these members we find the following entry:—"Dr. H. S. Schultess Young, M.A., M.D., 16, Queen Anne's-gardens, Bedford Park, London, W." In February, 1897, our attention was drawn to a leaflet and a press ticket concerning a meeting organised by the National Anti-vaccination League. On both the leaflet and the ticket appeared the name of H. S. Schultess Young, Esq., M.A., M.D. In our issue of Feb. 27th, 1897, p. 641, we stated that the name of Mr. Schultess Young did not appear on the current Medical Register. Mr. Schultess Young thereupon wrote to us saying that our remark was perfectly unexceptionable. He added: "But inasmuch as it might be hastily inferred that I have ever represented myself as an M.D. *tout court*, or by any inference upon the Medical Register, allow me to contradict that supposition with great emphasis. Nor do I know of any person who has even by inference so described me." Mr. Schultess Young informed us that he did not attend the meeting because he was in bed with an injured leg so that he had not appeared on a platform where he had been "billed" as M.D. Perhaps he will now take steps, if he is not M.D., to have himself correctly described in the *Malthusian*. We imagine he receives the paper monthly and that he must be aware that he is described as M.D. He has been connected with "Malthusianism" at least since 1891.

THE GRADUAL DEVELOPMENT OF FAHRENHEIT'S THERMOMETRIC SCALE.

IN THE LANCET of Feb. 22nd, p. 565, we quoted some passages from an article on Fahrenheit's thermometer which Sir Samuel Wilks had published in *Knowledge*, and in the May number of that journal there is a further contribution on the same subject by Professor Cleveland Abbe, of the United States Department of Agriculture, Washington, D.C. Professor Abbe doubts if Fahrenheit obtained any of his ideas from Sir Isaac Newton and he refers those desiring more information either to the first chapter of his own (Abbe's) Treatise on Meteorological Apparatus and Methods, Washington, 1887, or to an elaborate article by Renou in the *Annuaire* of the Meteorological Society of France. Professor Abbe says:—

> "There is every evidence that the Fahrenheit scale began with his use of plus 90 as the upper limit of the temperature of the human body, and minus 90 for the lowest temperature of the air in Europe, and also the temperature obtained by the mixture of salt and ice. Fahrenheit subsequently used a second scale in which plus 12 and minus 12 replaced the plus 90 and minus 90. In 1714 he adopted a third scale—viz., plus 24 for the temperature of the body and zero for the lowest temperature at Dantzic in 1709. His fourth scale was plus 96 for the temperature of the human body and zero for the great cold of 1709. This scale gave him 32 as the temperature of melting ice, but that natural point was not directly adopted by him. With this first satisfactory mercurial thermometer (made in 1721, and whose scale was graduated according to this last system but extended much farther upward, by extrapolation) he found that the boiling-point of water was constant, or nearly so, at 212 degrees. The fact that Newton's 'arithmetic scale' read 33 or 34 for boiling water had no influence with Fahrenheit in the formation of his scale."

TRAINED NURSES' REGISTRATION SOCIETY.

To the Editors of THE LANCET.

SIRS,—As a medical practitioner of many years' experience it occurs to me that the time has now arrived to place trained nurses on a firmer footing affording them, as well as the general public, protection against impositions. To meet this difficulty I suggest that a registration society should be formed under Government supervision to be called "The Trained and Registered Nurses' Society," adopting a universal uniform or badge, with the power to impose a penalty or fine on anyone assuming the same unjustly. I shall feel very grateful for any hints or suggestions as to how to proceed in this important scheme which will render tangible service to the most noble and unselfish portion of our fellow creatures.—I am, Sirs, yours faithfully,

HENRY BELCHER, M.D. Erlang. (retired).

28, Cromwell-road, Hove, Brighton.

TRANSFUSION *VERSUS* SUBCUTANEOUS INJECTIONS.

To the Editors of THE LANCET.

SIRS,—May I ask some of your correspondents to enlighten me on the following matters. (1) In saline transfusion is there not greater safety in the subcutaneous introduction of normal saline over the intravenous route where the operation of opening a vein entails, besides a more elaborate technique, the danger of thrombosis and embolism? (2) What are the etiology, prognosis, and treatment of membranous colitis?

I am, Sirs, yours faithfully,

St. Louis, Mo., April 22nd, 1902. J. ROSS CLEMENS, M.R.C.S. Eng.

THE POWERS OF A VESTRY.

To the Editors of THE LANCET.

SIRS,—Will you kindly give me information on the following case in next issue of THE LANCET? It is proposed by the select vestry of the church here to add an additional piece of ground to the existing graveyard at the church. This would bring the graveyard to a distance of less than 80 feet from the actual wall of a dwelling-house. Is this legal? Is there any legislation on the subject? The place is a portion of a rural district under the Local Government (Ireland) Act, 1898. The town is non-municipal, population 1600. The sanitary authority is the district council. Is it lawful for the vestry to make the ground or have they first to obtain formal permission, and from whom?

I am, Sirs, yours faithfully,

April 28th, 1902. R. D. C.

*** By the Local Government (Ireland) Act of 1898 there were transferred to the district councils constituted by that Act the duties of burial boards exercised before by the rural sanitary authority and in certain cases by boards of guardians, under the Public Health (Ireland) Act, 1878. By the same Act the whole of the business of the rural sanitary authority of each district was transferred to the district council. In the Public Health (Ireland) Act, 1878, now enforced by the district council in respect of burial-grounds, our correspondent will find a large number of sections dealing with opening, closing, and otherwise regulating burial-grounds. We observe that

the 174th section forbids new ground to be appropriated as a burial-ground or as an addition to a burial-ground nearer than 100 yards to any dwelling-house without the consent of the owner, lessee, and occupier of such dwelling-house. We also observe that the Local Government Board of Ireland is given considerable powers of interference where its disapproval is invoked in the case of the threatened opening of new burial-grounds. We are not, however, sufficiently informed as to the precise circumstances in which the proposed new addition to a burial-ground referred to by our correspondent is to be made or as to the rights claimed by the select vestry to be able to advise him positively as to the position of the district council in the matter or as to that of private individuals. The district council, however, appears to us to be primarily the party which should interfere should interference be deemed necessary, and it seems to us probable that a communication made to its clerk would elicit information as to the attitude which it is prepared to adopt. We should suggest communication with the Local Government Board should there be any question of the district council omitting to perform a duty assigned to it.—ED. L.

PROPOSED MEMORIAL TO THE LATE SURGEON-GENERAL W. NASH, A.M.S.

THE following subscriptions have been received since the last notification:—

	£	s.	d.
Major H. E. Winter, R.A.M.C	1	1	0
Lieutenant and Quartermaster G. A. Sellex ...	0	10	0
Captain F. W. Begbie, R.A.M.C.	1	1	0
Brigade-Surgeon-Lieutenant-Colonel W. Creyk, I.M.S. (retired)	1	1	0
Lieutenant L. Wood, R.A.M.C.	1	0	0
Previously acknowledged in THE LANCET	76	13	6
Total	£81	6	6

A REVOLVING SHELTER FOR PHTHISICAL AND OTHER CASES.

DR. A. EYTON LLOYD of Rhyl writes, in reply to the question asked by "Sanitation" in THE LANCET of May 3rd: "We have two of Boulton and Paul's (Norwich) revolving shelters at the Royal Alexandra Hospital. They are perfect if placed upon a dry—concrete preferable—foundation."

THE PREHISTORIC REMAINS RECENTLY ACQUIRED BY THE BRITISH MUSEUM.

To the Editors of THE LANCET.

SIRS,—With reference to Mr. R. Henslowe Wellington's letter in your issue of May 3rd, p. 1293, the following quotation may interest some of your many readers. In "The Realms of the Egyptian Dead" (Ancient East Series: David Nutt) Dr. K. A. Wiedemann, Professor of Egyptology in the University of Bonn, says (p. 41): "The corpse was laid carefully in the coffin, the mouth closed, the arms crossed on the breast or laid straight alongside the body, which was usually stretched horizontally on the back. In earlier periods there are some exceptions to this rule. In the Nagada period, before that of the Pyramids, when embalming was far less common, the bodies were usually placed in a crooked position and so they have been found as skeletons, the knees drawn up to the breast, the arms resting partly upon them, and the hands placed over the face. The dead must rest in the grave in the position in which the child awaits its entrance into the world, which by further analogy was ascribed also to the soul awaiting the resurrection. Somewhat later, and down to about 2000 B.C., the corpse was often placed upon the left side, or if on the back the head was turned to the left. That was the direction—looking towards the west and the realm of the dead—in which it was believed that the dead man could see out of his coffin and step forth from it. To express this possibility more vividly, on a corresponding spot outside the coffin were painted or carved in relief two great eyes out of which the dead man's eyes might look."

I am, Sirs, yours faithfully,

Upper Gloucester-place, N.W., May 5th, 1902. GEORGE PERNET.

THE R.A.M.C. UNIFORM.

To the Editors of THE LANCET.

SIRS,—As volunteer medical officers are now ordered to wear "Sam Browne" belts of the R.A.M.C. pattern except in review order I shall esteem it a favour if you or any of your readers will acquaint me with the differences of this belt as compared with the combatant officers'. Being desirous of obtaining this new belt I sent up to two military outfitters and they both sent me belts *exactly* similar to that worn by the executive officers.—I am, Sirs, yours faithfully,

May 6th, 1902. SURGEON-CAPTAIN.

*** There is only one "Sam Browne" belt.—ED. L.

FEES FOR INSURANCE EXAMINATIONS.

DR. EDGAR DU CANE has forwarded for our inspection two schedules relative to the medical examination of two candidates for insurance in the Yorkshire Insurance Company, 2, Clare-street, Bristol. The covering letter from the secretary of the Company, Mr. Goodchap, informs Dr. du Cane that "the proposals being under £100 the candidates will pay your fee." On looking at the schedules we estimate that to fill them up properly would entail for each one at least three-quarters of an hour's work. We cannot see why the fact of the sum to be assured being under £100 should make the patient liable for the fee. It takes, or it should take, just as long to examine a patient who wishes to be insured for £100 as one who wishes to be insured for £10,000. The client of the medical man is the insurance society, and not the person wishing to be insured. We recommend Dr. du Cane to refuse the services asked of him.

THE "Y" FUND.

SURGEON-GENERAL H. S. MUIR begs to acknowledge, with thanks, donations towards the "Y" Fund from Mrs. J. de Pass, Mrs. Pariente, Miss Clibborn, Mr. J. A. St. G. Whitty, Mr. J. H. Morgan, Dr. G. Brown, Mr. W. H. Meredith, Deputy Surgeon-General E. M. Sinclair (retired), Lieutenant-Colonel W. Johnston, A.M.S. (retired), Lieutenant-Colonel H. A. H. Charlton, A.M.S. (retired), Surgeon-Lieutenant-Colonel E. A. Roe (retired), Brigade-Surgeon S. K. Ray (retired), and the following officers of the Royal Army Medical Corps: Colonels J. Maturin and M. D. O'Connell; Lieutenant-Colonels R. Blood, J. Martin, M. W. Kerin, R. W. Mapleton, and A. Asbury; Majors G. E. Moffet and G. F. Alexander; and Captain P. H. Whiston. The fund now amounts to £91. It may be explained that this is in response to an appeal made privately to members of the profession for benevolent aid in a distressing case which has been described in a letter sent to a limited number of medical men (who would help the cause by kindly "handing on" to *confrères*). Should any reader of THE LANCET desire further particulars with a view to expressing *practical sympathy*, a copy of the letter will be forwarded on application to Surgeon-General Muir, 26, Kensington-gardens-terrace, Hyde Park, London, W.

THE MEDICAL PROFESSION AND THE PUBLIC VACCINATOR.

WE have received from a correspondent the following statement of the situation between himself and a brother medical man—the public vaccinator for the district—for it will not be difficult to see that it is B who addresses us.

In a densely populated district there are two practitioners, A and B, B having only recently started. A was appointed to the post of public vaccinator when he was the only medical man in the district and the appointment has been recently confirmed by the Local Government Board. As in many other districts, certain patients have preferred having their children vaccinated privately and not by the public vaccinator. Last week some patients called upon B, requesting B to vaccinate their children. B made an appointment with the patients to vaccinate their children in the course of two or three days. In the meantime A called and was at once informed that arrangements had been made with B. He then stated *that B was not allowed to vaccinate and further that if he (A) did not vaccinate the children he would "report them." Under this intimidation A vaccinated the children against their parents' consent.* What remedy has B against A in such circumstances? Can B sue A for damages for deliberately stating that he (B) is not allowed to vaccinate?

In commenting upon this story we have to remember that we have only B's side of the case before us and that B depends for his information as to A's words upon the parents of the vaccinated children. The parents state that A has alleged that B was "not allowed to vaccinate" and it is the parents, too, who declare that they have been intimidated. B. can do nothing unless he is certain that the evidence of the parents is trustworthy and will be forthcoming. Having satisfied himself, or preferably his solicitor, upon these points, he might represent to A. the necessity for an apology. We are not blind to the difficulties with which public vaccinators have to contend, but they place themselves wholly in the wrong if they attempt to secure a monopoly for themselves to the prejudice of their fellow-practitioners. B must consult his solicitor with regard to the questions with which he closes his statement.

AN OFFER.

To the Editors of THE LANCET.

SIRS,—I have a set of the *British and Foreign Medico-Chirurgical Review* which I shall be glad to give to any medical library that would like to have it.

I am, Sirs, yours faithfully,

L. M. GRIFFITHS.

11, Pembroke-road, Clifton, Bristol, May 6th, 1902.

M.B.—Our correspondent has presumably consulted that portion of the calendar of his university which deals with the examination for the degree in question. From our point of view he has a right to the style of "Doctor."

During the week marked copies of the following newspapers have been received:—*Welsh Gazette, Surrey Advertiser, Morning Herald (Perth, N.Z.), Coventry Herald, Belfast News, Birmingham Daily Mail, Municipal Reformer, Yorkshire Mercury, Liverpool Daily Post, Herts Advertiser, Times of India, Reading Mercury, Mining Journal, Local Government Chronicle, Hertfordshire Mercury, Windsor and Eton Express, Daily Telegraph, St. James's Gazette, Pharmaceutical Journal, Manchester Guardian, Dublin Evening Telegraph, Gazette Médicale de Paris, City Press, Australasian Medical Gazette, Centralblatt für Allgemeine und Pathologische Anatomie, Bulletin de l'Académie de Médecine, &c.*

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Stewart's Instruments.)

THE LANCET Office, May 8th, 1902.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radia in Vacuo.	Maximum Temp. Shade.	Min. Temp	Wet Bulb	Dry Bulb.	Remarks at 8.30 A.M.
May 2	29·76	S.W.	0·01	90	58	40	45	46	Raining
,, 3	29·59	W.	0·10	104	56	43	47	51	Cloudy
,, 4	29·80	N.	0·35	94	50	44	45	47	Cloudy
,, 5	29·99	N.W.	0·11	98	55	43	43	44	Raining
,, 6	30·15	N.	0·07	95	52	38	41	45	Cloudy
,, 7	30·16	N.E.	0·01	95	52	37	40	42	Cloudy
,, 8	30·19	N.E.	0·15	98	51	41	42	44	Cloudy

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (12th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.) West London (2.30 P.M.), London Throat (2 P.M.), Royal Free (2 P.M.).

TUESDAY (13th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.).

WEDNESDAY (14th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.).

THURSDAY (15th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.).

FRIDAY (16th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.). West London (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square, (9.30 A.M.), City Orthopædic (2.30 P.M.).

SATURDAY (17th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing-cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), London Throat (2 P.M.), Throat, Golden-square (9.30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY (12th).—MEDICAL SOCIETY OF LONDON (11, Chandos-street, Cavendish-square, W.).—8 P.M. General Meeting. Election of Officers and Council for Session 1902-3. 8.30 P.M. Ordinary Meeting. Paper:—Dr. P. Manson: The Diagnosis of Malaria from the Standpoint of the Practitioner in England.

TUESDAY (13th).—ROYAL MEDICAL AND CHIRURGICAL SOCIETY (20, Hanover-square, W.).—8.30 P.M. Papers:—Mr. T. Bryant: An Analysis of 46 Tabulated Cases of Cancer of the Breast which have been Operated upon and Survived the Operation from Five to 32 Years.—Mr. Rickman J. Godlee: A Contribution to the Study of Tropical Abscess of the Liver.

WEDNESDAY (14th).—DERMATOLOGICAL SOCIETY OF LONDON (11, Chandos-street, Cavendish-square, W.).—5.15 P.M. Demonstration of Cases of Interest.

FRIDAY (16th).—SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN (North-Eastern Hospital for Children, Hackney-road, N.E.).—5.30 P.M. Cases and Specimens will be shown by Dr. J. Taylor, Mr. D. Drew, Dr. J. P. Parkinson, Mr. H. Carre Smith, Mr. A. B. Roxburgh, Dr. J. H. Sequeira, Mr. S. F. Rose, and Mr. S. Stephenson. Paper:—Dr. C. O. Hawthorne: A Note on a Case of Arthritis accompanying Ophthalmia Neonatorum.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (12th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. A. Whitfield: Clinique. (Skin.)

NATIONAL INDIAN ASSOCIATION (Jehanghir Hall, Imperial Institute-road, S.W.).—4.30 P.M. Paper:—Prof. Jagadis Chunder Bose: Electric Pulse in Plants, with experiments.

TUESDAY (13th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Sir W. H. Broadbent: Clinique. (Medical.)

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury).—3.30 P.M. Dr. Risien Russell: The Value of the Tendon-jerks and Superficial Reflexes in Diagnosis.

WESTMINSTER POST-GRADUATE COURSE OF CLINICAL DEMONSTRATIONS.—4.30 P.M. Demonstration:—Dr. Allchin: Some Clinical Aspects of Arthritis.

WEDNESDAY (14th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. A. H. Tubby: Clinique. (Surgical.)

THURSDAY (15th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. Hutchinson: Clinique. (Surgical.)

CHARING-CROSS HOSPITAL.—4 P.M. Mr. S. Boyd: Surgical Cases. (Post-Graduate Course.)

THE HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M. Mr. Pitts: Demonstration of Selected Cases.

FRIDAY (16th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. H. Tilley: Clinique. (Throat.)

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